DECEMBER 1936

COTTON

Serving the

TEXTILE INDUSTRIES

Mills are

MADE AND BROKEN

over bridge tables

Strange fact, but true. "Consumer acceptance" really means "reputation among women." They buy nearly all of the hosiery and wearing apparel sold in this country. They judge on color style, wear, elasticity, absorbency and comfort. Controlled Manufacture puts these features into Dixie durene and Dixie durene helps put them into your merchandise. Let Dixie's representative get you samples.

Dixie

MERCERIZING COMPANY
CHATTANOOGA, TENNESSEE

DIXIE DURENE . . . . A PRODUCT OF CONTROLLED MANUFACTURE

GARMENTS BY KAYSER

We can make prompt deliveries on cotton knitting yarns,—natural, bleached or colored for hosiery, for underwear, or for outerwear. One of our specialties is bleach bottom shades, such as pinks and salmons. We also have had marked success with dark fast-to washing shades that can be safely used next to bleached yarns. An outstanding characteristic of our dyed or bleached knitting yarns is their soft finish.

Our yarn department can duplicate practically any popular count and quality of yarn desired.

Our exceptional experience in yarn dyeing with respect to time, volume and variety is your assurance of performance that is seldom equalled and never surpassed, and—

PERFORMANCE (not price) DETERMINES VALUE

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • CHICAGO • N. Y. REPRESENTATIVE, 40 WORTH ST.

COTTON is published monthly by W. R. C. Smith Publishing Company, Dalton and Atlanta, Ga.
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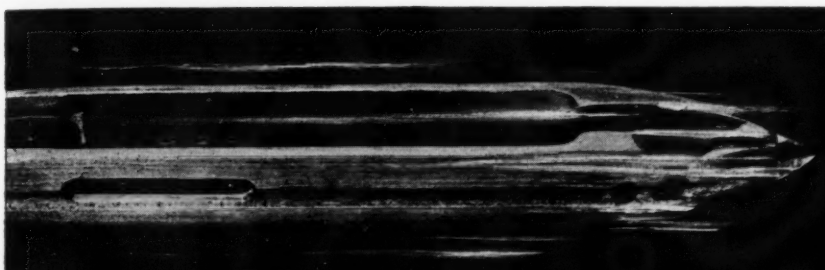


How Fast

Do Your Shuttles Run?

On 40" X Models at a speed of 192 Picks

They Run at 38 Feet per Second

On 90" XL Models at a speed of 120 Picks

They Race at 42 Feet per Second

But at the End of Every Pick
This Speed is Checked by a Full Stop

On Your 40" X Model Looms the Shuttle

Makes 11520 Stops per Hour

With This Terrific Speed
And These Sudden Stops

You Must Have Good Shuttles to Weave Good Cloth

Draper Shuttles Meet These Conditions

With Few Misthreads or Filling Breaks

They Are Custom-Made to
the Conditions in Your Mill

DRAPER CORPORATION

Hopedale Massachusetts

Atlanta Georgia Spartanburg S C

TEXACO AT WORK

NO DISCOLORATION

You will get less spoilage with Texaco Summitlube because it is white.

Years of experimental work in the laboratory and under actual service conditions in textile mills back this new product.

Careful selection of ingredients and constant checking of compounding processes enable us to give Summitlube its stability and high lubricating qualities.

In your ring travelers, Summitlube will reduce wear, and give you less drag with fewer ends down. In all types of textile machinery where discoloration can spoil goods, or require extra process to remove it, you will find marked economy by using Summitlube.

A Texaco representative will be glad to provide practical engineering service to prove to you the efficiency of Texaco Summitlube.

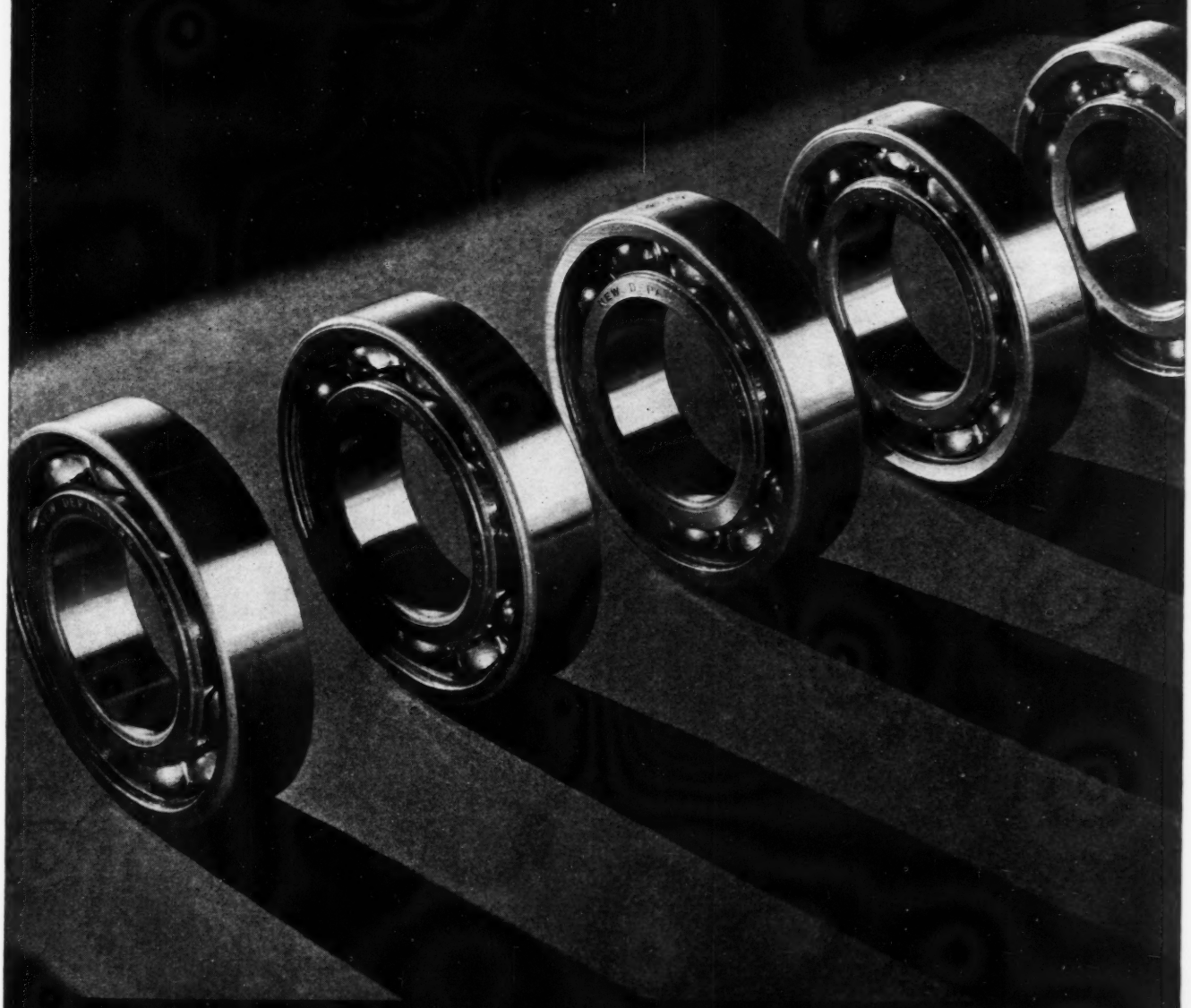
THE TEXAS COMPANY
135 East 42nd Street, N. Y. C.
Nation-wide distribution facilities assure prompt delivery

TEXACO

THE NEW TEXACO SUMMITLUBE

From New Departure will come the next great development in anti-friction bearings

It has always been so!



NEW DEPARTURE

THE *FORGED STEEL* BEARING

FOR RAPID AND EFFICIENT DESIZING ... RAPIDASE ... FOR RAPID AND EFFICIENT DESIZING

RAPIDASE

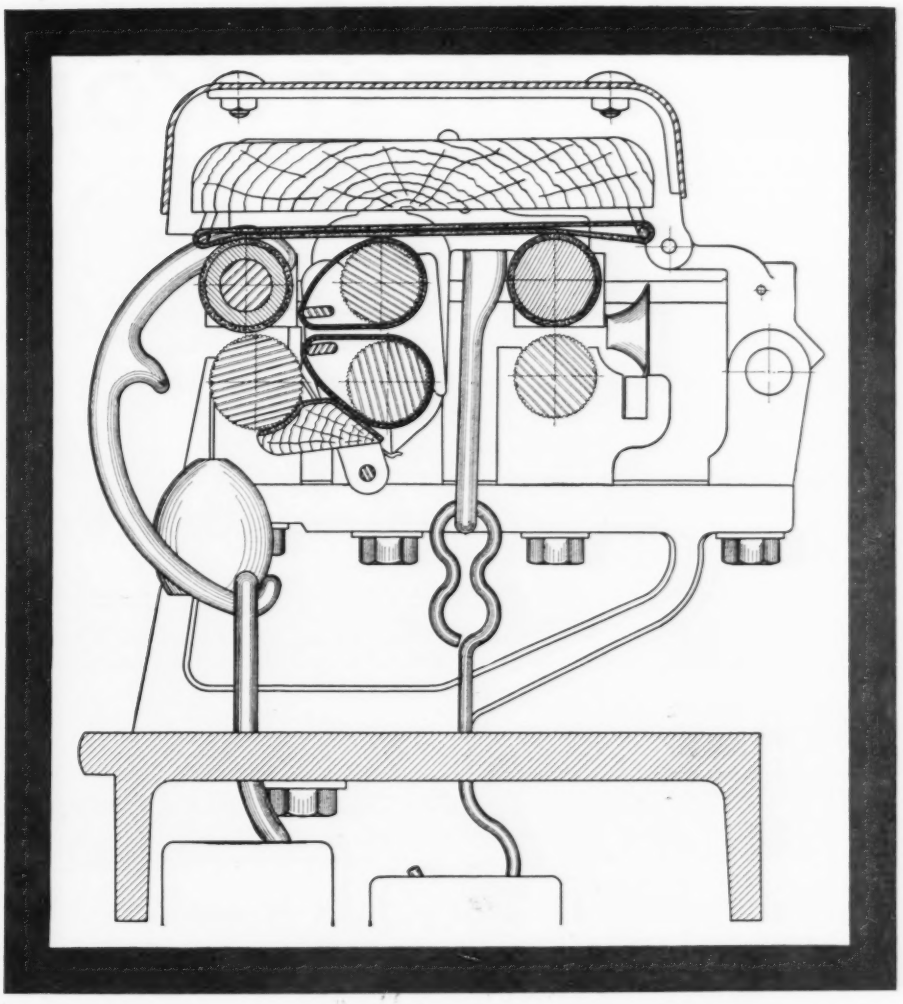
for

RAPID AND EFFICIENT DESIZING

of

COTTONS · RAYONS MIXED GOODS

WALLERSTEIN CO., INC.
171 Madison Ave.
New York City



BUY ON WHITIN—CASABLANCAS PERFORMANCE

Do you spin 16's yarns, or coarser?

Most of your competitors are using Whitin-Casablancas Slubbers.

Do you spin yarns within the range of 20's to 30's?

Let us tell you about the advantages of Whitin-Casablancas Long Draft on 8 x 4" Roving Frames.

Whitin-Casablancas Roving long draft is simple, cheap and effective. It SAVES floor space. Every installation has paid for itself in three years or less — sometimes within eighteen months.

One hundred American Mills have bought this equipment for more than 80,000 spindles.

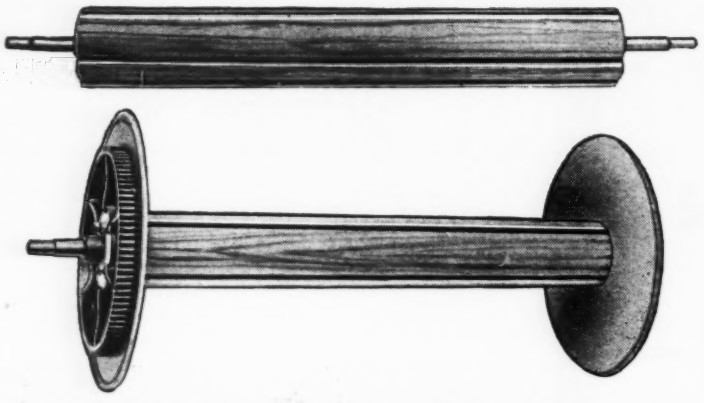
No machinery investment made today will pay for itself more quickly!

WHITIN MACHINE WORKS

CHARLOTTE, N. C. WHITINSVILLE, MASS. ATLANTA, GA.

WEST POINT LOOM BEAMS

BEAM HEADS



BEAM BARRELS

YOU CAN DEFINITELY INCREASE the efficiency of your looms by the use of West Point Loom Beams. High and low places on edge of warp, and consequent bad selvage, are eliminated.

The barrels of West Point beams are made of thoroughly seasoned wood and the journals are of tough plow steel. All are turned to exact size and length. Our beam barrels may be fitted with either our high tensile strength cast iron or Etchison patented steel heads.

We particularly recommend Etchison steel heads because they act as a shield and protect the gears. They are practically indestructible. They cost more than the cast iron heads but are worth the difference, and those mills which are using them will attest to this fact.

IF you have a production problem whereby special machinery or parts are needed, let your problem become our problem. We would make suggestions or furnish designs by our own engineering department. Or we can make anything special from your own design.

Our foundry and machine shop is ably equipped to make anything large or small, simple or intricate, in the way of textile machinery repair parts, gears, cloth room machinery or other special machinery. A number of mills have used our made-to-order service, and we have produced or perfected special machinery exclusively for those mills. Let us help you solve your problems and make special equipment for you.

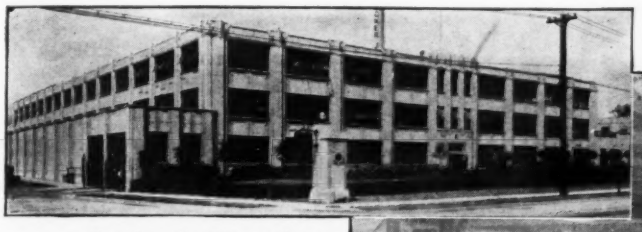
May we furnish you with more information about West Point Loom Beams?

WEST POINT FOUNDRY & MACHINE CO.

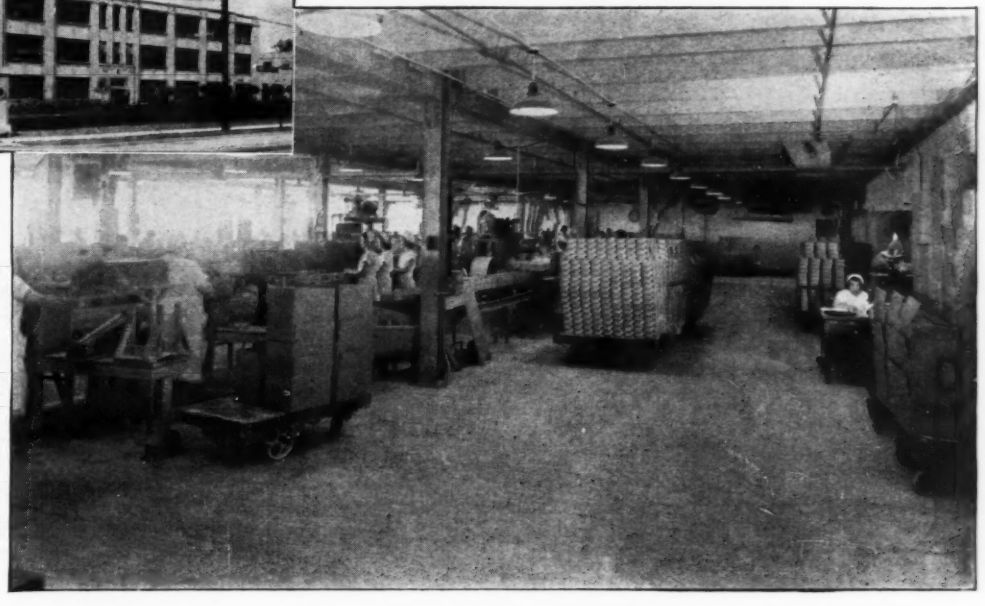
(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

A MILLION Sq. Ft. of Maple Flooring for CRACKER JACK!



Cracker Jack's modern new plant in the Clearing Industrial District of Chicago.



Rolling trucks help tons of Cracker Jack on its way to satisfy sweet tooths. But this floor can "take it"—for Hard Maple resists abrasive wear—does not develop ridges. Note the light-reflecting qualities of Hard Maple.

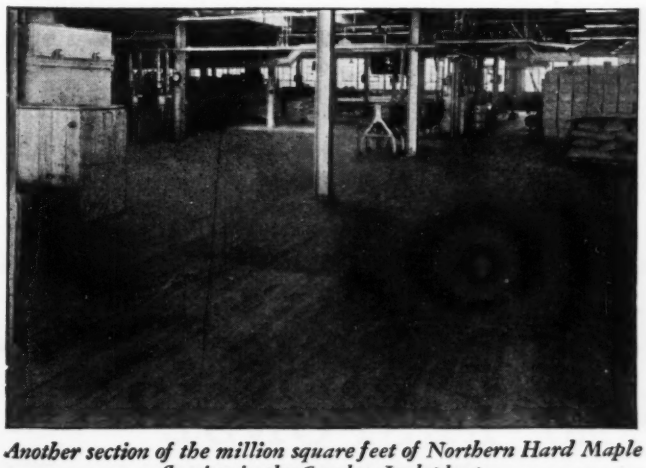
MILLIONS and millions of packages of Cracker Jack—one of the world's best-known confections—are produced yearly in this modern plant. Production must be fast, economical, and highly sanitary. Every factor must contribute to produce this high quality confection at lowest cost. With its years of manufacturing experience, it was logical that when building a new plant, The Cracker Jack Company should select Northern Hard Maple for the flooring—a million square feet in all!

There are definite reasons for this selection. This tough-fibred, tight-grained wood is remarkably resistant to abrasion—retains its smoothness through the years despite hard usage and the pounding of heavy trucks. Its smooth surface offers no lodging-places for dirt, making this flooring highly sanitary. It creates no dust to injure the bearing surfaces of costly machinery. Resilient, warm and dry, it reduces fatigue, adds to workers' comfort and efficiency—and it simplifies plant alterations.

Further, when treated with the penetrating heavy-duty finishes available, Northern Hard Maple is kept clean merely by brushing—it minimizes maintenance and cleaning costs.

Plants of all types find these qualities of Northern Hard Maple equally important for their purposes. You can floor with Maple in blocks or strips, with or without pattern, over wood or concrete sub-floors, or over your present floor. Before building anew, or modernizing, be sure to investigate the many advantages of MFMA* Northern Hard Maple.

Our "Grading Rules" book describes the various grades and gives standard specifications for laying and finishing. Write for a free copy.



Another section of the million square feet of Northern Hard Maple flooring in the Cracker Jack plant.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1794 McCormick Building, Chicago, Ill.

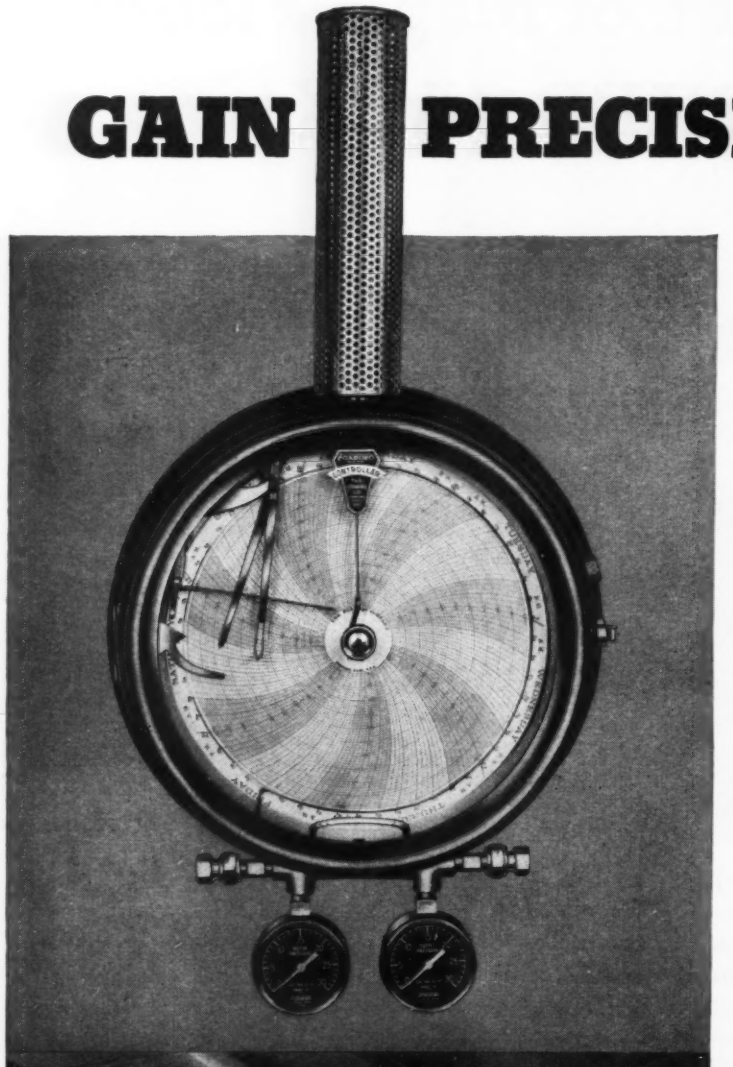
See our catalog data in Sweets, Sec. 15/53. Let our service and research department assist you with your flooring problems. Write us.

Floor *with* Maple

* The letters **MFMA** on Maple, Beech or Birch Flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve these remarkable woods. This trade-mark is for your protection. Look for it on the flooring you use. **M F M A**

MFMA Approved

GAIN PRECISION CONTROL

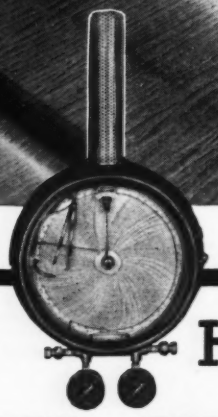


OF YOUR WEAVING CLIMATE FOR STRONG, FLEXIBLE FIBRES

Proper humidity facilitates manufacture of all textile fibres. It keeps the fibres strong and flexible, keeps them from becoming fluffy, from breaking, from becoming charged with electricity. It enables the fibres to "lay up" closely so as to produce a fine, smooth product. The finest manufacturing conditions can be maintained day after day, winter and summer alike, with Foxboro Humidity Control.

Moreover, the weight of finished textiles can be equal to the weight of the raw fibres. There need be no loss such as dry, warm mill workrooms normally produce. Each department can have the exact humidity required for most economical manufacture.

Foxboro's long years of experience in humidity control and its comprehensive line of instruments assure the most efficient and economical control for each and every service. Write for information to the Textile Division, The Foxboro Company, 18 Neponset Avenue, Foxboro Mass., U. S. A. . . . Atlanta Office: 161 Spring Street Building. Branch Offices in 25 Principal Cities.



FOXBORO HUMIDITY CONTROL

ACCURACY FOXBORO *RESPONSE*

REG. U. S. PAT. OFF.

Where Quality is Paramount, there you will find Saco-Lowell Roth Better Drafting

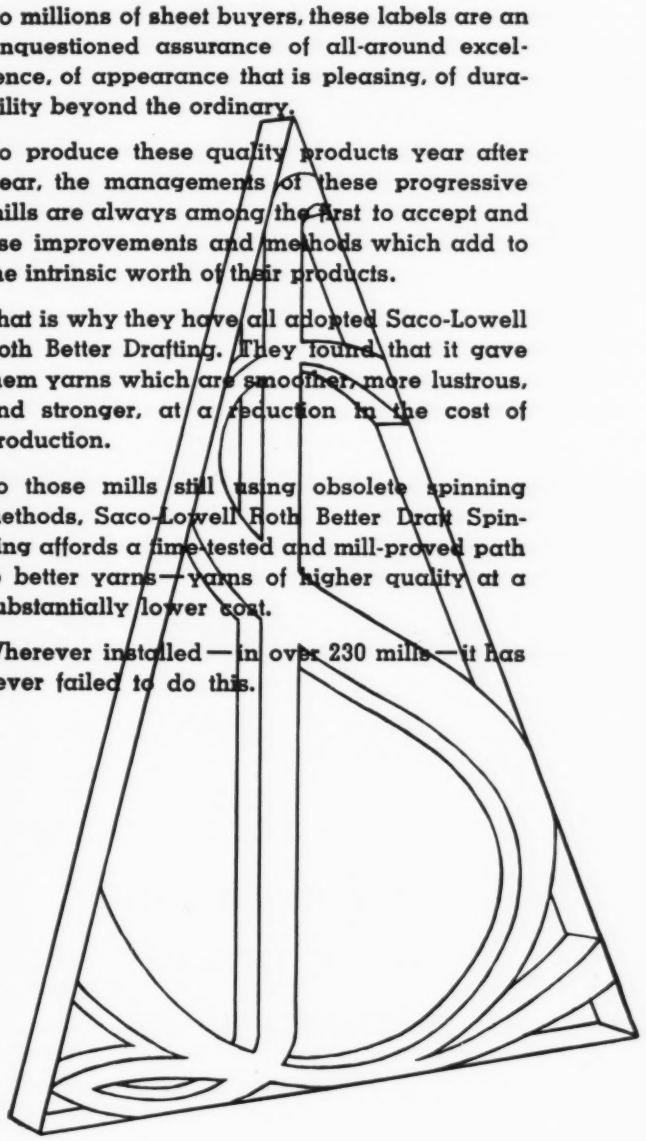
To millions of sheet buyers, these labels are an unquestioned assurance of all-around excellence, of appearance that is pleasing, of durability beyond the ordinary.

To produce these quality products year after year, the managements of these progressive mills are always among the first to accept and use improvements and methods which add to the intrinsic worth of their products.

That is why they have all adopted Saco-Lowell Roth Better Drafting. They found that it gave them yarns which are smoother, more lustrous, and stronger, at a reduction in the cost of production.

To those mills still using obsolete spinning methods, Saco-Lowell Roth Better Draft Spinning affords a time-tested and mill-proved path to better yarns—yarns of higher quality at a substantially lower cost.

Wherever installed—in over 230 mills—it has never failed to do this.



SACO-LOWELL ROTH BETTER DRAFTING

SACO-LOWELL SHOPS
147 MILK STREET, BOSTON, MASS.

The Aldrich Synchronized Single Process Picking System

IS used in more mills and on more pickers than any other system.

There must be good reasons for the overwhelming preference for the Aldrich System.

Some of these are:

It is the simplest, most logical and least expensive recognized single process system.

It makes better laps than other systems.

It is fool-proof—There is nothing to set or adjust.

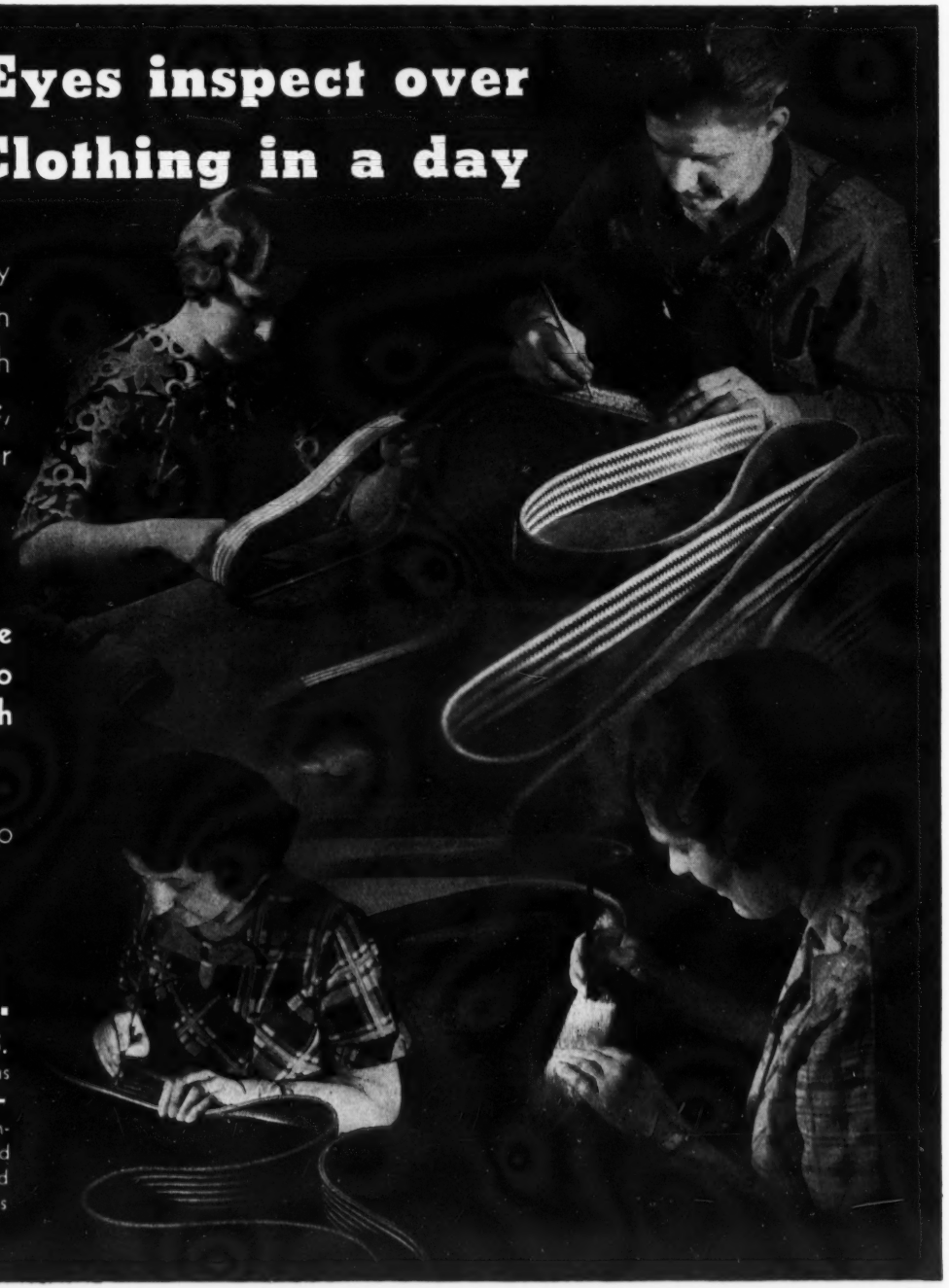
The Aldrich Method of Synchronization can be applied to other types of single process picking with appreciable improvements in the quality of the work produced by the pickers.

Made by

ALDRICH MACHINE WORKS

Greenwood, South Carolina

Nimble Fingers and Keen Eyes inspect over 2 miles of TUFFER Card Clothing in a day



Over 56 million points are examined every working day by highly-skilled inspectors to maintain TUFFER quality. Such vigilance brings TUFFER Card Clothing to you with every tooth in correct position, with uniformity in height, pitch and angle, with all edges correctly trimmed and finished perfectly for immediate use on your cards.

A boss carder in South Carolina says:

"I am a user of TUFFER Card Clothing and find it to be good and tough and to last a long time. It is a pleasure to apply it and watch the uniform results day by day, through years of service."

If you have a problem in carding, we shall be pleased to submit suggestions from our 70 years of experience.

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Plant: 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

Products: Fillets for Feed Rolls, Lickerins, Tumblers, Strippers, Workers, Doffers, Fancies, and Cylinders, Doffer Rings, Napper Clothing, Strickles, Emery Fillets, Burnisher Fillets, Top Flats Recovered and extra sets loaned, Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant. Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

ELIMINATING INTERNAL COMPETITION

10 WINDERS IN PLACE OF 18

The ten Model 102 Foster Cone Winders in this modernized winding room have replaced eighteen obsolete models.

The Foster Model 102 increases production about 100 per cent and reduces labor cost about ⅓ as compared with older type machines. It also produces better cones; that is, the lay of yarn and taper conform to the latest standards, and density is both uniform and most suitable for knitting.

This machine handles all counts and qualities equally well,—colored yarns as well as natural.

Can you match this performance in your winding room? If not, don't blame external competition for loss of profits. Blame INTERNAL competition or obsolete machinery and take steps to eliminate it by writing us for full particulars about the Model 102.

FOSTER MACHINE COMPANY

WESTFIELD, MASS.

FRED P. BROOKS, Representative

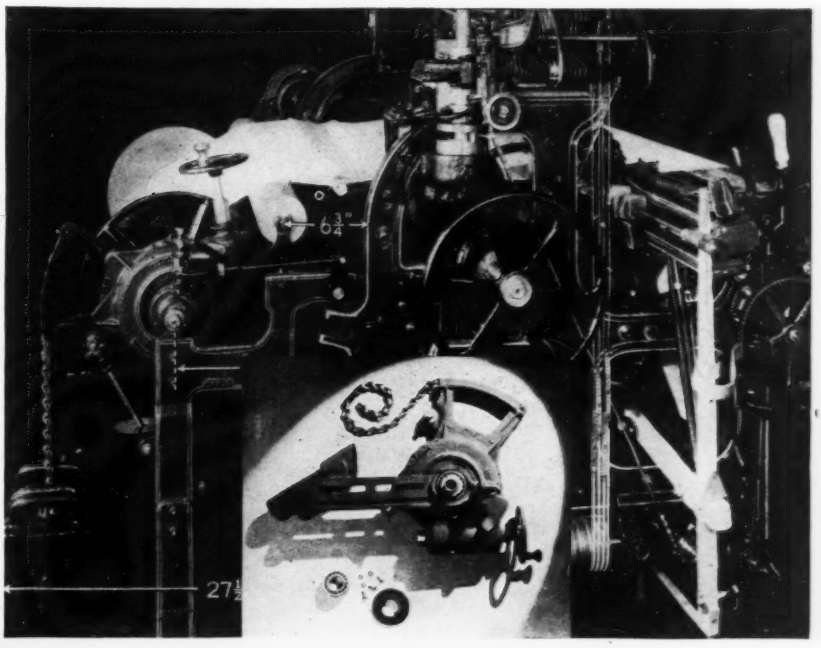
P. O. Box 941, Atlanta, Ga.

FOSTER

MODEL 102

Standard for the Knitting Trade

SKF-EQUIPPED
BUILT BY
CROMPTON & KNOWLES
LOOM WORKS



FRICTION STAYS OUT

when SKF are used on automatic let-offs

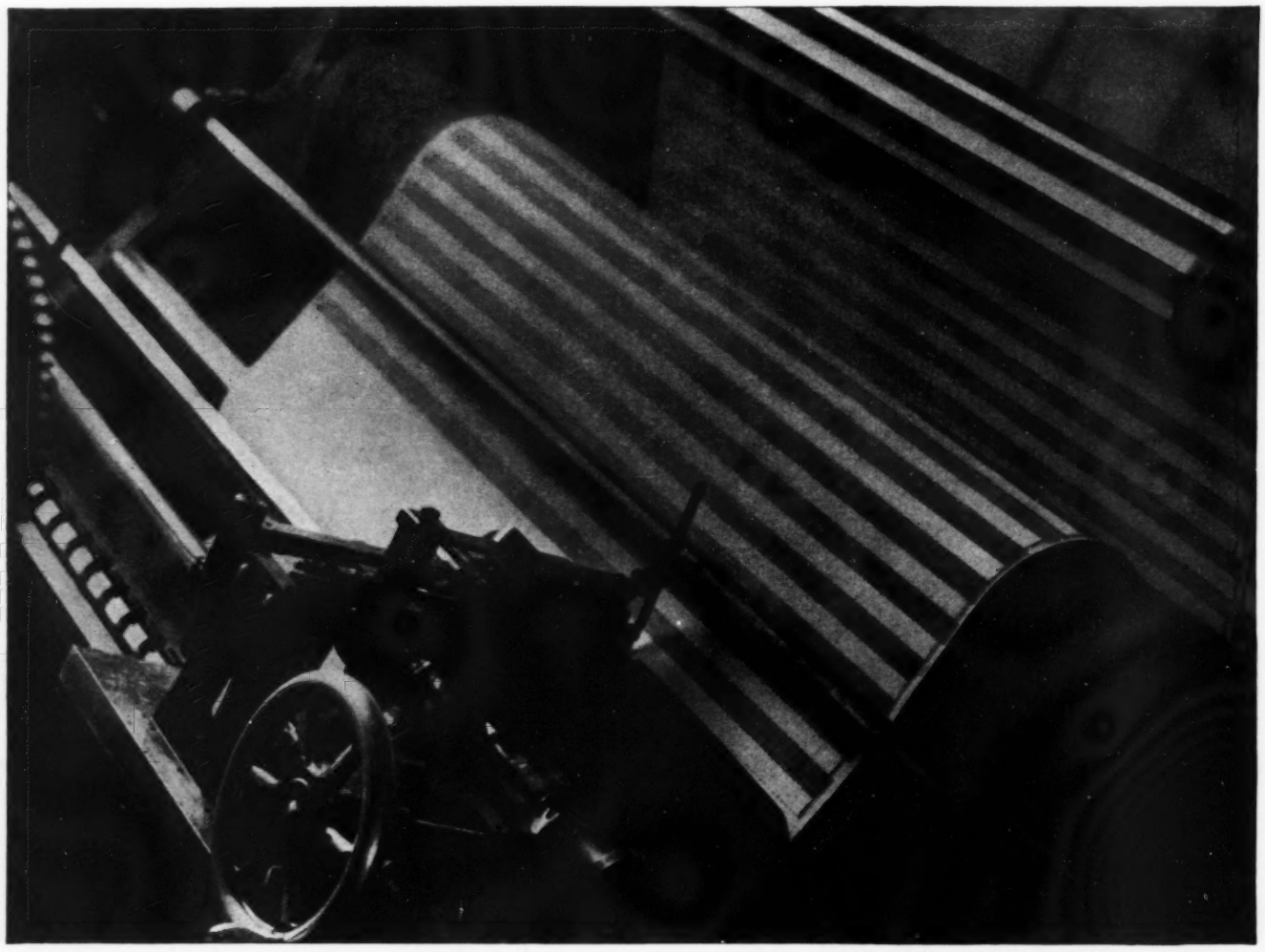
"No friction enters into this Automatic Let-Off," say Crompton & Knowles. It is designed to make tension and beam movement entirely free of any action of whip rolls, links, levers, gears or ropes—and its beam rests dependably on SKF.

SKF Self-Aligning Ball Bearings easily allow the beam to let off the exact amount of warp required for each pick. Their built-in alignment compensates for any shaft deflection. Their ability to run smoothly for long periods without showing wear assures long life of co-related parts. Their freedom from adjustments, lubricant leakage, and attention eliminates excessive labor, lubrication and spoilage costs. When ordering new looms, specify SKF not only for let-offs, but for cam, crank and rocker shafts and other important locations.

SKF INDUSTRIES, INC., FRONT ST. AND ERIE AVE., PHILA., PA.

3746

SKF
BALL & ROLLER BEARINGS



ASHWORTH TOP FLAT CARD CLOTHING

Made on Automatic Machinery—Therefore Always Uniform

Ashworth top flat card clothing is made on automatic machinery of the type illustrated. This company has the largest installation of these machines in the card clothing industry.

This equipment is your assurance of prompt deliveries and uniform quality.

Certain features of this machine originated with Ashworth. These features have contributed much to the efficiency and the durability of the product.

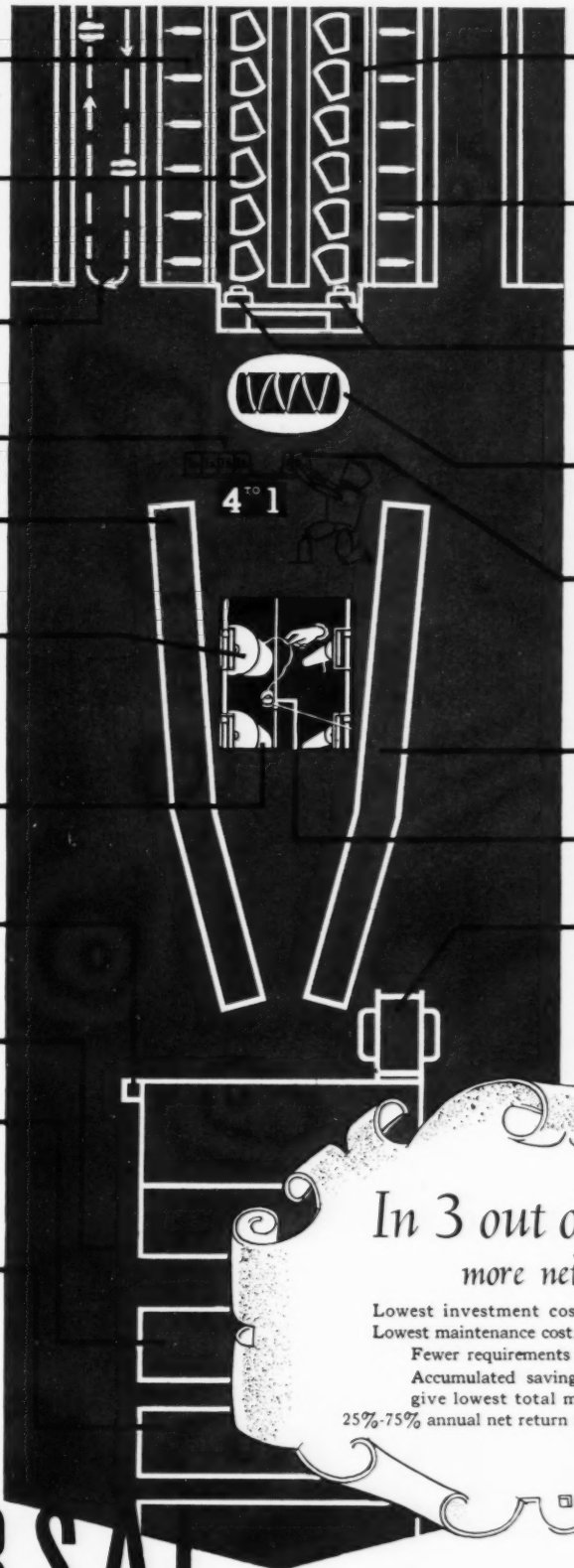
ASHWORTH BROS., INC.
Woolen Division: AMERICAN CARD CLOTHING CO.
Factories in FALL RIVER WORCESTER, PHILADELPHIA

Ashworth
PIONEERS IN CARD CLOTHING

SALES OFFICES AND REPAIR SHOPS IN CHARLOTTE ATLANTA AND GREENVILLE. SOUTHWESTERN REPRESENTATIVE: TEXTILE SUPPLY COMPANY, DALLAS, TEXAS

PRODUCTS AND SERVICES • Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for All Types of Napping Machinery; Brusher Clothing and Card Clothing for Special Purposes; Lickerin Wire and Garnet Wire; Sole Distributors for Platt's Metallic Wire; Lickerins Rewired and Top Flats Reclothed at All Plants.

INDEX to SAVINGS . . . with the Universal System of High Speed Coning and Warping



Winder handles filling, combination or warp wind spinning bobbins.

Automatic stopping of cone—both hands of operator free for knot-tying—no spooler kinks.

Operator walks in uniform cycle — increases production 25%-33 1/3%.

Yarn waste from broken and cracked spools saved.

Magazine creeling eliminates dead yarn, reduces process stock inventory.

Extra cone holder for each warping end greatly reduces time lost for creeling when changing yarn counts.

Overend delivery — no strain as from unrolling spools.

Yardage clock is geared to driving drums — uniform run out of slasher sets.

Fixed position of beam builds perfect selvedges.

Electrically-controlled stop motion and powerful brakes prevent lost and crossed ends at slasher.

Balanced beams hold up to 600 lbs. of yarn.

High winding speed (750 y.p.m.) increases production—automatically cleans yarn.

Uniform winding speed permits minimum tension —preserves yarn's elasticity.

Individual motor and empty bobbin conveyor for each side.

Rotating traverse revolves in same direction yarn is traveling. No chafing.

4-lb. cone replaces 4 1-lb. spools, saves 75% in cost of creeling, holds enough yarn for 3 or more full beams.

Long runs of one count with no stops for creeling.

Anti-lint creel tension is adjustable for yarn counts.

High speed of warper (450 y.p.m.) increases production.

In 3 out of 4 Mills

more net return

Lowest investment cost, lowest depreciation
Lowest maintenance cost, no reciprocating guides
Fewer requirements for fractional units
Accumulated savings in fixed charges
give lowest total manufacturing cost
25%-75% annual net return replacing slow speed system

UNIVERSAL WINDING COMPANY

BOSTON NEW YORK PROVIDENCE SPRINGFIELD UTICA CHARLOTTE ATLANTA

A COMBINATION OF RUGGED STRENGTH AND PRECISION

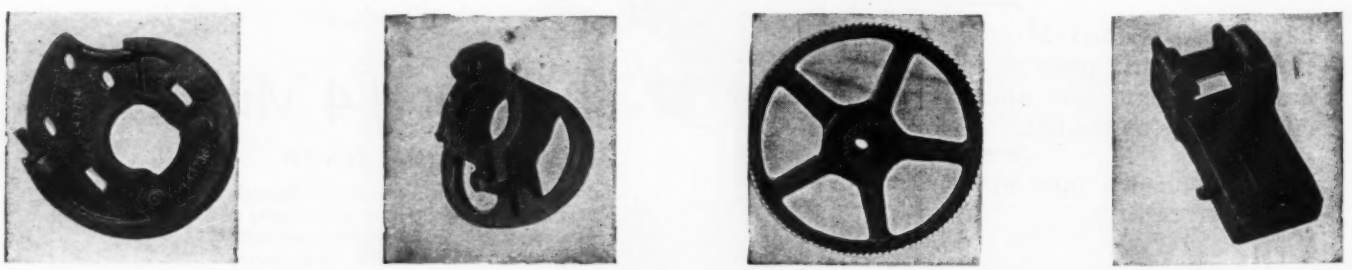
Qualities like precision and accuracy are nearly always associated with parts that are delicate and small. The rugged strength, characteristic of every Henderson part, large or small, may easily deceive the eye in regard to their precision and accuracy. However, they are as accurate and precise as precision patterns and fine workmanship can make them.

This combination of strength and precision is necessary for real efficiency when part replacement becomes necessary. The extra strength built into each Henderson Part is the result of many years in the study of weak points in present day textile equipment and extra strength at those points that will last longer and operate smoother.

Henderson Textile Repair Parts are helping many textile mills modernize their machinery. These strong, accurate, and efficient parts are made to fit so perfectly and operate so smoothly that even the oldest machinery can be made more efficient by their use.

Let Henderson help *you*. Pick out your most troublesome parts and let us supply a replacement. You will find these parts will pay dividends in less stoppages and decreased maintenance costs.

HENDERSON FOUNDRY AND MACHINE WORKS
HAMPTON, GEORGIA



HENDERSON
TEXTILE REPAIR PARTS

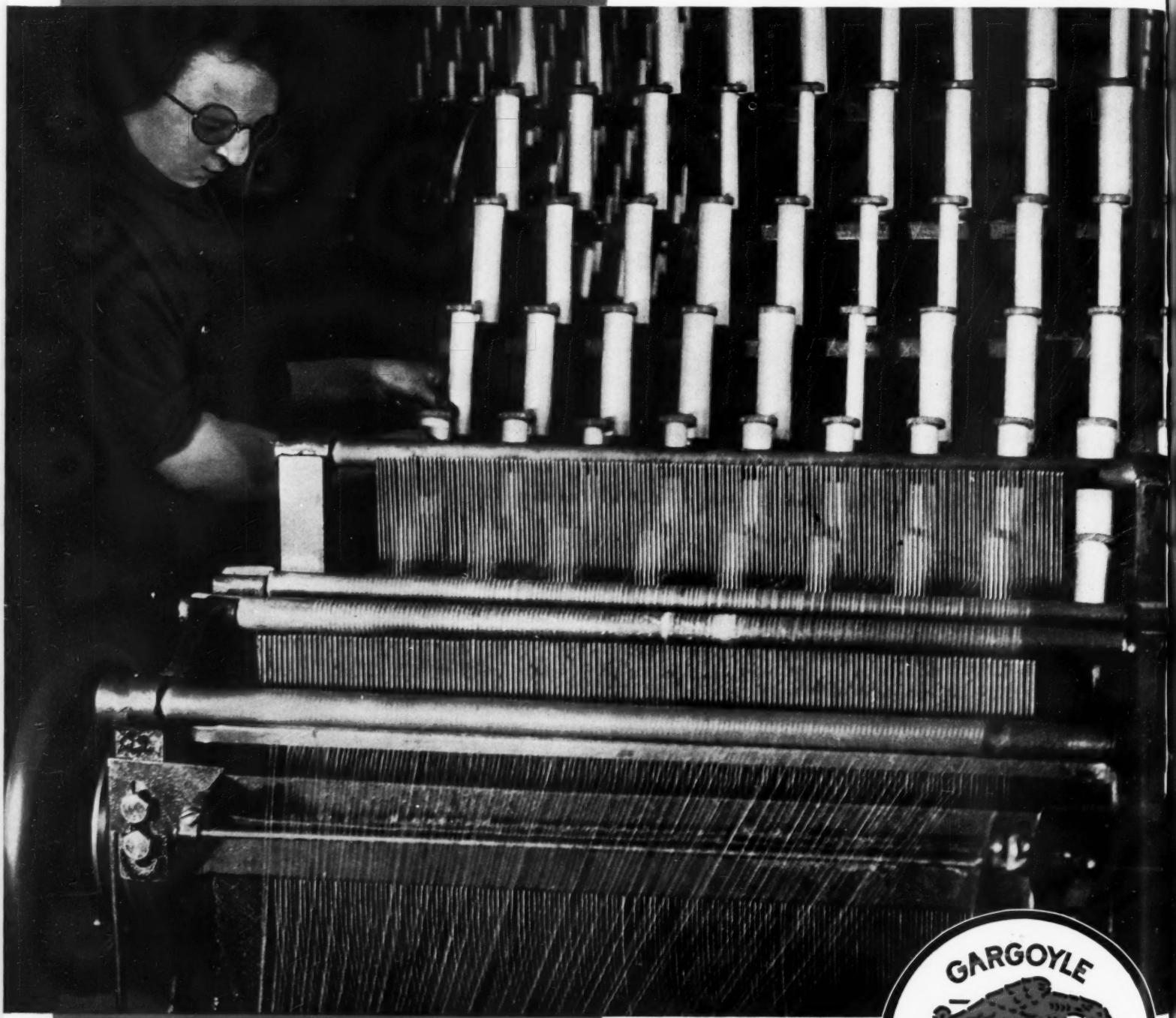
...and Oil for the MINDS IN YOUR PLANT!
SOCONY-VACUUM Will Help Your Men Better the Work they do for You
YOU WILL FIND that your own men—those who know your problems best — will quickly find use in their daily problems for Socony-Vacuum's friendly cooperation and 70 years of practical experience.
Here, a valuable suggestion; there, a new idea, enable them to work out worth-while efficiencies and economies.
That is why thousands of plants—many in your own locality—will tell you one of the best reasons for doing business with Socony-Vacuum is the kind of help their men get. Try this in your plant and see!
SEE THE FOLLOWING PAGE...

FOR LOWER COSTS— LESS SPOILAGE!

Give your operators Gargoyle Lubricants to help them boost profits

MANY OF OUR BEST customers in the textile field once used other oils. But they found after careful comparison that Gargoyle Lubricants enabled them to lower power costs and spoilage rates.

Let your loom fixers and section foremen concentrate on production schedules. Put the lubrication of your mill up to Socony-Vacuum. We'll pass on to your men practical experience gained in thousands of mills.



SOCONY-VACUUM OIL CO.
INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

GARGOYLE
Lubricants

OPEN WINDOWS are FALSE FRIENDS

Be warned about spinning and weaving room windows. Pretending to perform a useful service they actually waste your money. For when these windows are opened they lower humidity, cause spotty conditions, ends-down, seconds and high costs. They are false friends.

The Parks Automatic Airchanger, on the other hand, is a friend you can trust to improve production and lower costs. It has *proved* itself. By a patented feature, the system ties in the humidifiers with an automatically controlled air change and provides maximum cooling with *constant humidity,* uniformly distributed. It helps to maintain quality and quantity up to highest standards, makes working conditions more comfortable—winter and summer.

The Parks Automatic Airchanger is designed to utilize and supplement your existing system. No adequate humidifier equipment needs to be scrapped. And the reasonable investment required is soon returned in savings. Send for further information. The coupon below will bring it to your desk—without obligating you at all.

PARKS-CRAMER CO., FITCHBURG, MASS . . . CHARLOTTE, N. C.

PARKS *Certified* **CLIMATE**

Gentlemen: Please send me Bulletin 235 on the Parks Automatic Airchanger ☐ You may have an engineer call ☐ (Please check)

Name .....

Company .....

Address .....

City ..... *State* .....

3269

MODERNIZATION

IS PREVALENT THROUGHOUT THE TEXTILE INDUSTRY

The textile mills are enjoying the best business they have had in many years. Practically all of them are running to capacity, sold well in advance, and what is even more important, they are making reasonable profits. It means the mills are in the financial condition and mental mood to make investments in additions, machinery and equipment to put their plants on the most efficient basis possible.

In line with this activity will be the FEBRUARY MODERNIZATION AND MAINTENANCE NUMBER of COTTON. The latest practices in cotton mill management and manufacturing, circular and full-fashioned knitting, rayon weaving and textile dyeing, bleaching and finishing will be discussed by practical and successful men in their respective branches of the industry. Readers will find in this issue authoritative special articles on modernization and maintenance that will warrant their reading it carefully, studying it and referring to it often.

Companies selling the textile mills will find advertising in this important number most valuable and opportune. Advertising forms close January 20th. Make your space reservations early.

COTTON

Serving the Textile Industries

Grant Building, Atlanta, Georgia

PRINTERS! Are you enjoying these great improvements in VAT PRINTING!

1 Much larger color yields.

2 Greater bloom and brilliance to colors.

3 No sticking in engravings.

4 A longer, more elastic gum that will not break finest lines.

5 Elimination of "snaps" and streaks.

6 Ideal gum for pigmented rayons.

YOU GET THEM ONLY with

When you use VATRONYX Printing Gum Powder, you discover a great change has taken place in Vat Printing.

You miss the usual production troubles. You notice a great improvement in clarity of print—in brilliance and depth of colors.

Printers have long needed a product like VATRONYX. Now Onyx chemists bring it to you.

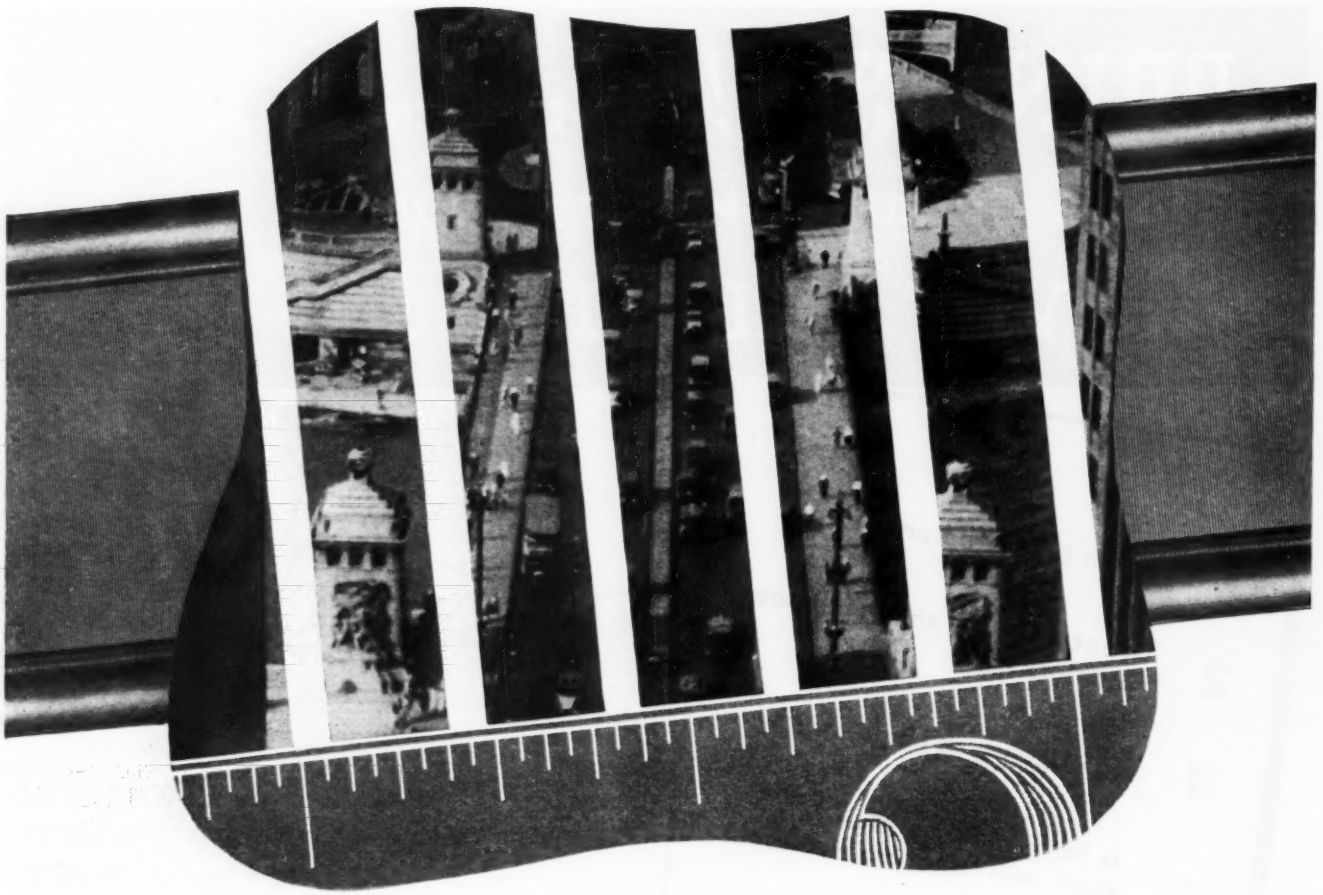
A test run with VATRONYX reveals its values. Write in detail for working sample and instructions.

Onyx Oil & Chemical Co., Jersey City, N. J.

Specialists on Finishing Materials

Southern Repr. E. W. Klumph, Charlotte, N. C.
Midw. Repr. Maher Color & Chemical Co., Inc., Chicago.
In Canada: Onyx Color & Chemical Co., Ltd., Montreal.

VATRONYX PRINTING GUM POWDER



WIDER AVENUES

for freer warp movement . . . .

The diagram superimposed on the picture illustrates the greater air spaces between the dents of Emmons all-metal and pitchband reeds. It is possible to get up to 65% air space between the dents of an Emmons Reed . . . with no less rigidity.

Result: fewer loom stops and fewer rejects and seconds — there is far less danger of roughing or cutting the yarn.

OTHER FEATURES

Super-polishing Emmons dents, after 6 polishing operations, are uniform in thickness within 1-1000th of an inch. Good knots, small slubs and nits pass through without trouble.

Accurate spacing Dent spacing is micrometer-measured — accurate to within 1-100th of an inch. This accuracy helps maintain free warp movement and eliminates streaking caused by uneven warp spacing. Super-resiliency insures that the original spacing will be maintained throughout service — regardless of any carelessness in drawing the warp through the reed.

Longer life Emmons Reeds—both all-metal and pitchband—hold their accuracy. They can be depended upon for perfect alignment and correct spacing longer than any other reeds of their type.

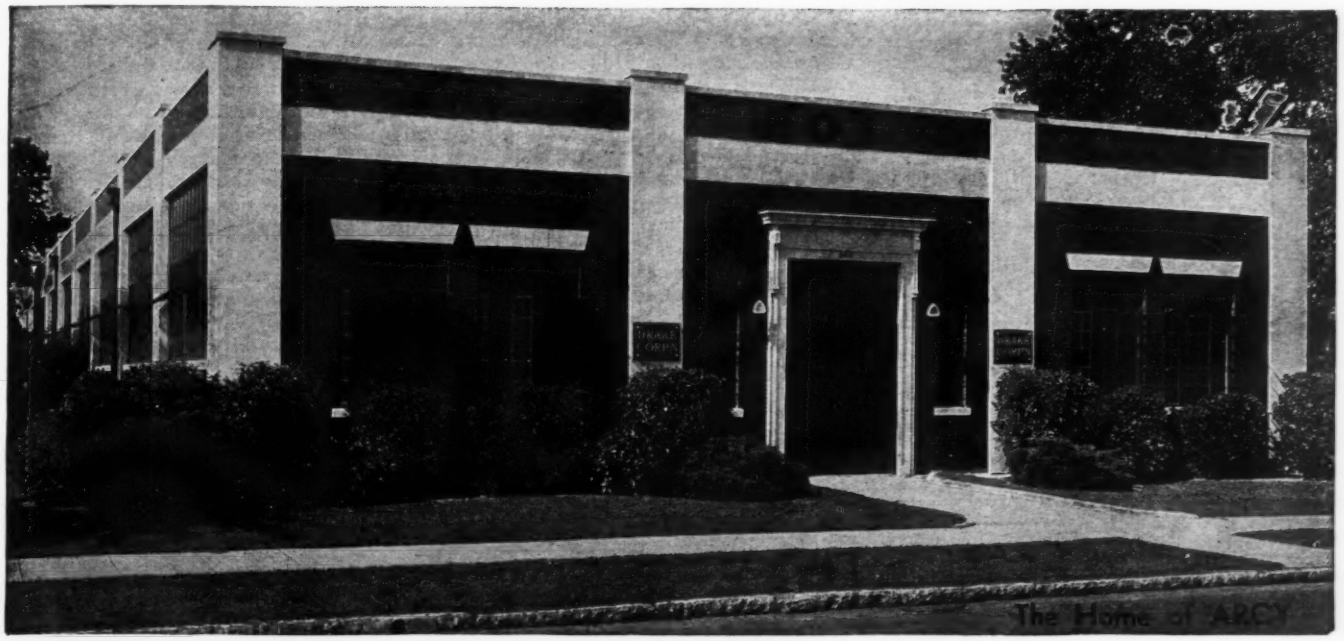
Quick delivery Enlarged production facilities and closeness to high-quality sources of supply allow us to fill orders for custom-made reeds — all-metal or pitchband — in minimum time. Telephone or telegraph collect, if you need reeds in a hurry.

Multiple Air Space

Emmons reeds

EMMONS LOOM HARNESS CO.

LAWRENCE, MASS.



There Is Only ONE

ARCY

and it comes from the very modern plant shown above.

ARCY is the enzyme product used for more than 8 years by many of the largest textile mills for liquefying ordinary pearl starch in the cooking kettles, to produce superior warp sizing and cloth finishing mixtures.

ARCY enzymes are amylases, with characteristic properties not found in any other product. There are many other kinds of enzymes, which convert starch but which have no value in textile mill use in preparing starch sizes, because they will carry the conversion into sugars, to the utter destruction of the desirable properties of starch for warp sizing. Because of this, ARCY should NOT be confused with malt diastase, pancreas, or other enzymes which convert starch into bodies which have no value in warp sizing.

Ordinary pearl starch which can be furnished by any of the CORN STARCH MANUFACTURERS in AMERICA, produces most excellent warp sizing and cloth finishing results, when liquefied with ARCY, to produce a thin sizing solution with marked penetrating and binding properties. The soluble starch thus produced is more transparent and does not "cloud" the colors, especially noticed in denims and chambrays. Frosted splotches are prevented, and all colors show up brighter, than when the dyed threads are coated with a less transparent film.

Reasons given by most mills for using ARCY liquefied pearl starch usually are not so much because of the dollar or two saving in the cost per kettle of size, but the better results they find in weaving the warps, and the feel of the finished goods, which is so pleasing to the buyer of the goods. Also, the more soluble nature of the starch assists the finisher to get superior finishes at the bleach works.

Arcy liquefaction gives to corn starch size the slow congealing properties of potato starch size, which corn starch size does not possess naturally. Slow congealing size remains fluid for longer time at temperatures below boiling, and its fluid state during the time the wet warp is passing from the squeeze rolls to the drying drums, allows the size to FLOW into the crevices between the cotton fibres, and probably is responsible for the smooth feel imparted to the sized thread.

ARCY is the only enzyme product which has stood the test of time (over 8 years) for successfully liquefying ordinary pearl starch in the cooking kettles. No acids, chlorine, or other similar oxidizing chemicals are present. No extra equipment required, and its use is simple and practically fool-proof.

Write for free booklet and list of many mills now profiting through ARCY—no obligation.

DRAKE CORPORATION, NORFOLK, VA.

TEXROPE DRIVES
for every industry

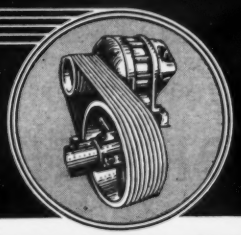
Do you want a large or small, a light or heavy, a constant or variable speed V-Belt drive? • Allis-Chalmers makes them all and not only makes them all but conceived and developed the entire multiple V-Belt principle. Also the Duro-Brace design which gives you a sheave with maximum strength and minimum weight and the Vari-Pitch design which enables you to vary your speed by making a simple adjustment. Therefore, if you want the greatest knowledge and the widest experience built into every V-Belt drive that you buy, you want Texrope V-Belt Drives built by the Allis-Chalmers Manufacturing Company. Texrope Drives are made in ranges of from ½ hp. to 2,000 hp. and in speed ratios from 1 to 1, to 10 to 1 in all popular ratings. Texrope Drives are 98.9% efficient . . . Require no belt dressing or lubrication . . . Are unaffected by moisture or dust . . . Are shock absorbing, vibrationless, slipless, silent and clean. • The Allis-Chalmers Manufacturing Company invites you to install a Texrope Drive with its guarantee of satisfaction or money back.

Write for Vari-Pitch Bulletin No. 1261

Belts by Goodrich

TEXROPE DIVISION

ALLIS•CHALMERS



MILWAUKEE WISCONSIN

As the textile industry marches on, each new dawn of prosperity emphasizes the need for improved ways and means to build business.

In 1937, as in the past three score and ten years, we will contribute to textile progress with outstanding products for sizing, printing and finishing. It is the special task of our laboratories to provide dependable materials for greater efficiency and economy.

Renewing our pledge of service, we wish you a full share of prosperity in 1937.

STEIN, HALL & COMPANY, INC.

285 Madison Avenue **New York City**

STARCHES, DEXTRINES AND GUMS FOR

SIZING • PRINTING • FINISHING

Photo by Ewing Galloway

Burroughs

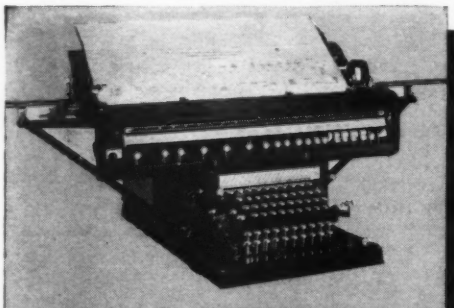
PLAN YOUR PAYROLL ACCOUNTING NOW

to obtain the information required by the

SOCIAL SECURITY ACT

Many employers are finding in recent Burroughs developments a simple solution to accounting problems set up by the Federal Social Security Act. Many have found that the exceptional speed, ease and economy of new Burroughs machines make it possible actually to lower accounting costs and still have the additional information required.

Investigate. Let a Burroughs representative assist you in meeting your payroll problems now, so that you will be prepared to furnish the information required by the Act when it becomes effective the first of the year.

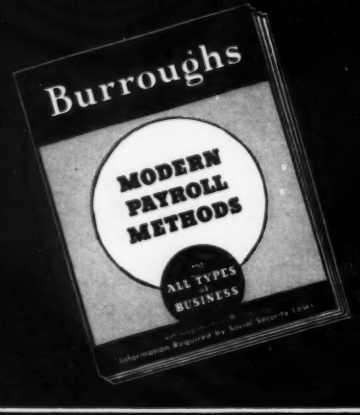


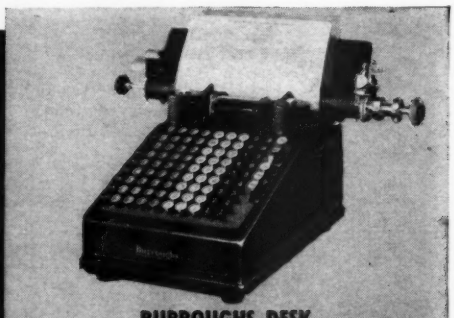
BURROUGHS TYPEWRITER ACCOUNTING MACHINE

Writes check (or pay envelope), earnings record, employee's statement and payroll summary in one operation. Column selection automatically controlled. All totals accumulated. Models to handle every accounting job.

THIS NEW FOLDER MAY HELP YOU

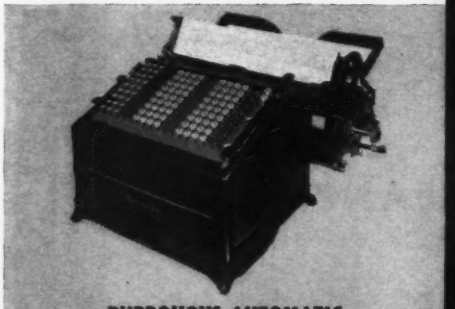
Burroughs has just produced an interesting descriptive folder illustrating complete payroll accounting methods, with typical forms for maintaining the information required by the Social Security Act. The forms show representative entries and suitable column headings. You may have this folder without charge simply by mailing the coupon.





BURROUGHS DESK BOOKKEEPING MACHINE

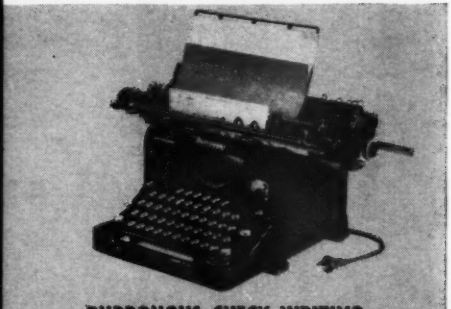
Posts earnings records, automatically prints dates in proper columns, automatically subtracts deductions—calculates net pay. Can also be used as a fast adding-subtracting machine for all kinds of accounting work. Low prices.



BURROUGHS AUTOMATIC PAYROLL MACHINE

Writes check (or pay envelope), employee's earnings statement, earnings record and payroll summary in one operation. Accumulates all necessary totals. Many models for payroll work as well as for other accounting jobs.

MAIL THIS COUPON!



BURROUGHS CHECK-WRITING TYPEWRITER

Writes payroll checks in units or in strips. Payroll summary completed in same operation. Fast and easy insertion and removal of checks. Can also be used for correspondence and general typing. Electric carriage operation.

BURROUGHS ADDING MACHINE COMPANY, 6571 Second Boulevard, Detroit, Michigan

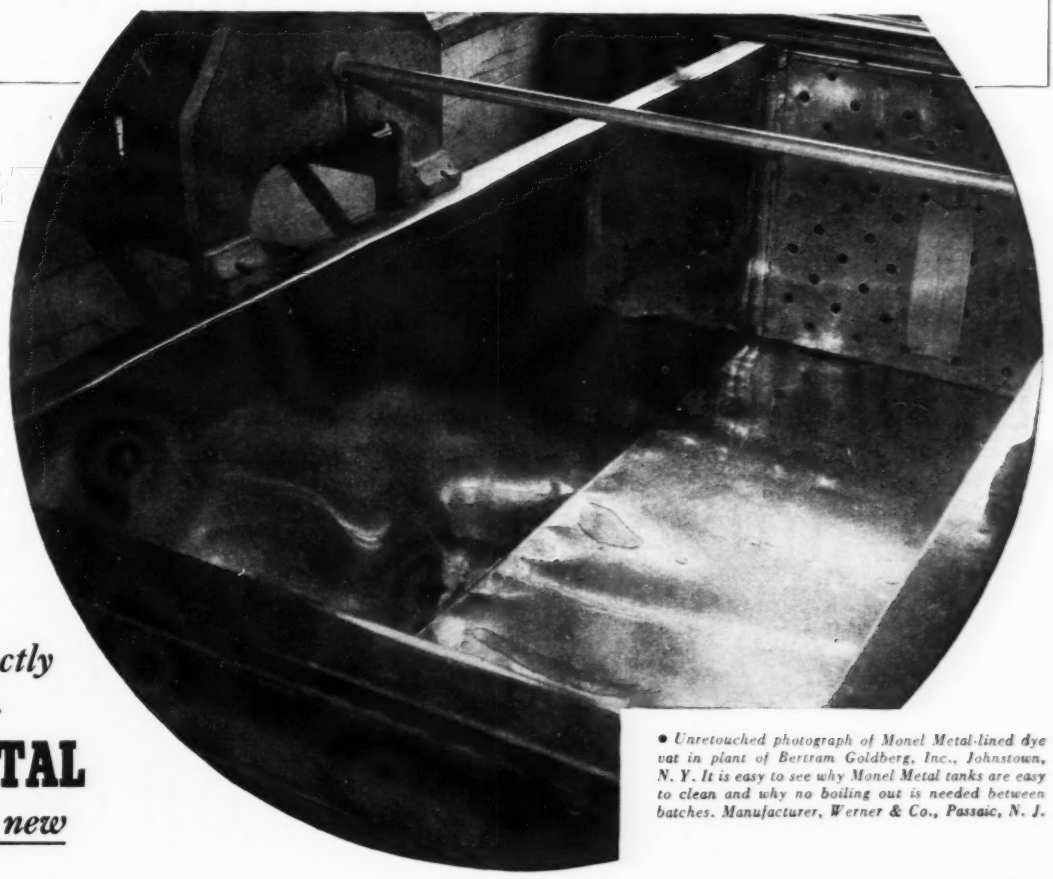
Send me the new folder, "Modern Payroll Methods"—which includes illustrations of forms for compiling figures required by the Federal Social Security Act.

Name_____ Type of business_____

Address_____

TIME *hasn't Touched this Tank...*

...and WE *haven't Retouched its Photo!*



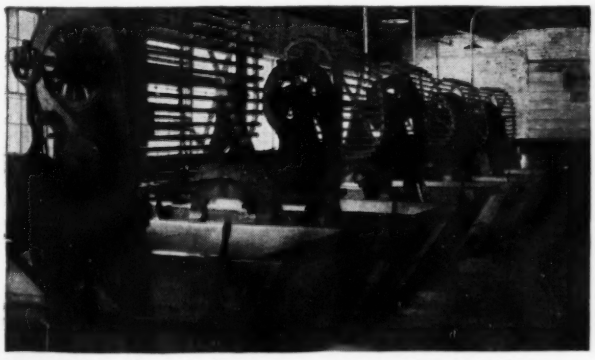
After
10 YEARS'
daily use
it still looks exactly what it is . . .
MONEL METAL
and as good as new

• *Unretouched photograph of Monel Metal-lined dye vat in plant of Bertram Goldberg, Inc., Johnstown, N. Y. It is easy to see why Monel Metal tanks are easy to clean and why no boiling out is needed between batches. Manufacturer, Werner & Co., Passaic, N. J.*

THIS dye vat . . . one of eight Monel Metal-lined tanks in the plant of Bertram Goldberg, Inc., Johnstown, N. Y. . . . has seen practically daily service for ten years. And what varied service that has been:

It is used for dyeing silk, cotton and rayon; using direct, basic, and all acetate colors. Also logwood black. And, in addition, it is used for peroxide bleaching and stripping.

The photos are un-retouched. The close-up shows no evidence of rust, corrosion, wear or roughness. You wouldn't see any if you should go through the Goldberg plant and look at these tanks with your own eyes. But you *would* see a whole battery of Monel Metal-lined tanks . . . equipped with Monel Metal rolls, baffles, heating units, reels and tie rods. You'd also see Monel Metal transfer boxes, hampers, buckets, dyestuff strainers and carrier frames.



Battery of Monel Metal-lined dye vats in the plant of Bertram Goldberg, Inc., Johnstown, N. Y. There are eight Monel Metal tanks in all—equipped with Monel Metal rolls, reels, baffle plates, heating units, and tie rods. Monel Metal is also used in this plant for transfer boxes, hampers, buckets, dyestuff strainer, and carrier frames.

And, with all this Monel Metal equipment, you would look in vain for rust or corrosion. For splinters. Or for chipped or roughened surfaces that might snag delicate fibres. Because Monel Metal is *rust-proof*. It is *solid*, with no coating to chip or wear away. It is stronger than steel. And it takes a high polish and holds it through a long and useful life.

Monel Metal is easily fabricated by all the common methods of working including welding and silver soldering. Write for Bulletin TS-3, "The Use of Monel Metal Equipment for Dyeing with Developed Colors, Stripping and Bleaching." Address:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

For more than a generation, leading Southern textile mills have been effecting material savings in power, repair expense and lubrication costs—through the use of STANDARD OIL lubricants...STANDARD'S *complete* line permits the choice of *exactly* the right oil or grease to keep each machine operating at *maximum efficiency.*

STANDARD OIL COMPANY

INCORPORATED IN KENTUCKY

Staley's

Textile starches

CONTRIBUTE TO GENERAL MILL EFFICIENCY AND PROFITS. THERE IS AN EXACT GRADE FOR EVERY PURPOSE.

STALEY'S COOPERATION AND SERVICE ARE USEFUL TO YOU IN ANY KIND OF AN EMERGENCY.

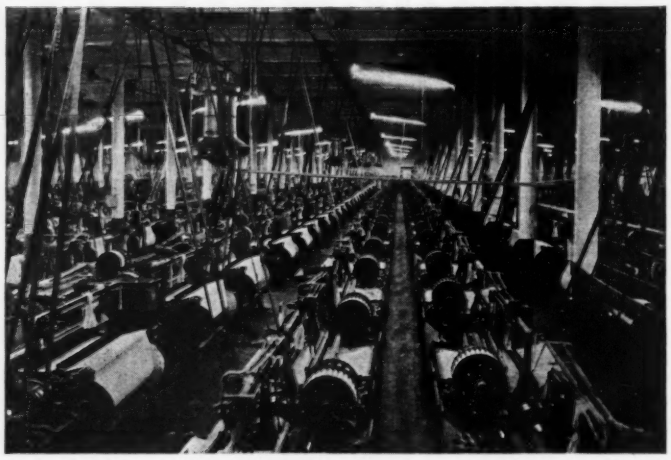
A. E. Staley Manufacturing Company

DECATUR, ILLINOIS

ATLANTA *PHILADELPHIA* *DALLAS* *NEW YORK CITY*
SPARTANBURG *SAN FRANCISCO* *CHICAGO* *BOSTON*

COOPER HEWITT ENGINEERED LIGHTING

Low intrinsic brightness eliminates eye-strain . . . *permits uniform production*



Every thread is clearly distinguishable in this cotton mill in South Carolina under restful Cooper Hewitt Mercury Light.

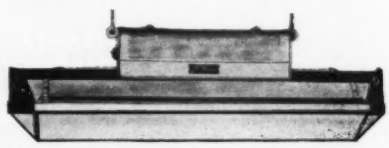
Give your workers cool, shadow-reducing Cooper Hewitt Mercury Light. Glareless, and unvarying in intensity throughout the 24 hours, this light aids more uniform production . . . better work. Its long light source helps operators to see down inside the harness of a loom or other hard-to-light spots.

Cooper Hewitt's yellow-green light alone is the ideal illumination where perception of detail is most important. Where color discrimination is desirable, incandescent lamps can be added to the mercury—achieving a close approximation to daylight. General Electric Vapor Lamp Company engineers are lighting specialists with over 30 years' experience. They will gladly discuss "engineered lighting" for every job with you... General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

STANDARD MERCURY

The Cooper Hewitt Mercury Light has been the standard of industrial illumination for over thirty years.

COMBINATION MERCURY AND INCANDESCENT



For use where discrimination of color is of paramount importance.

GENERAL ELECTRIC VAPOR LAMP COMPANY

757C

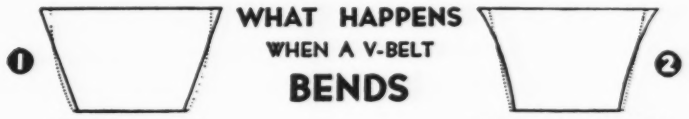
This INTERESTING TEST

Shows exactly how the Concave Side is saving DOLLARS

Wherever Machinery Turns

Bend *any* V-belt and *feel* it change shape. The top, under tension, *narrows*. The bottom widens. The sides of the belt bulge out. The result is a shape that does not fit the sheave groove—as shown in Figure 1, below.

WHAT HAPPENS WHEN A V-BELT BENDS



STRAIGHT SIDED BELT

BELT WITH PATENTED CONCAVE SIDE

Now, bend a V-belt built with the patented *Concave* side. You get the *same* shape change but *now* the new shape *exactly fits* the sheave groove—as shown in Figure 2. There is no side-bulge. Results? (1) *Uniform* side-wall wear; *longer life!* (2) Full side-wall grip on the pulley means no slippage; saves belt wear and *power!*

The Gates Vulco Rope is the only V-belt built with the patented concave side.

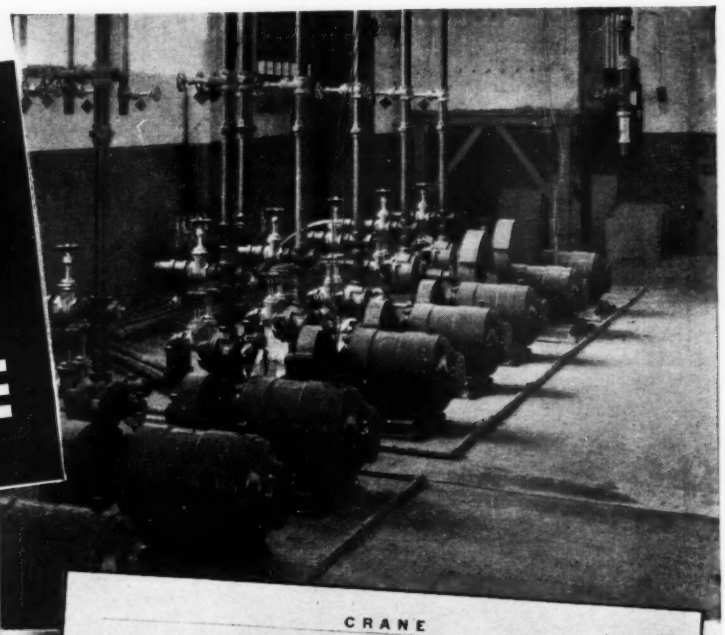
Engineering Offices and Stocks in All Large Industrial Centers

THE GATES RUBBER CO., *Factory Branches*

Terminal Bldg. HOBOKEN, N. J.
1524 So. Western Ave. CHICAGO
741 Warehouse St. LOS ANGELES
2213 Griffin St. DALLAS
999 So. Broadway DENVER

GATES VULCO ROPE DRIVES

Avoid NEEDLESS MAINTENANCE



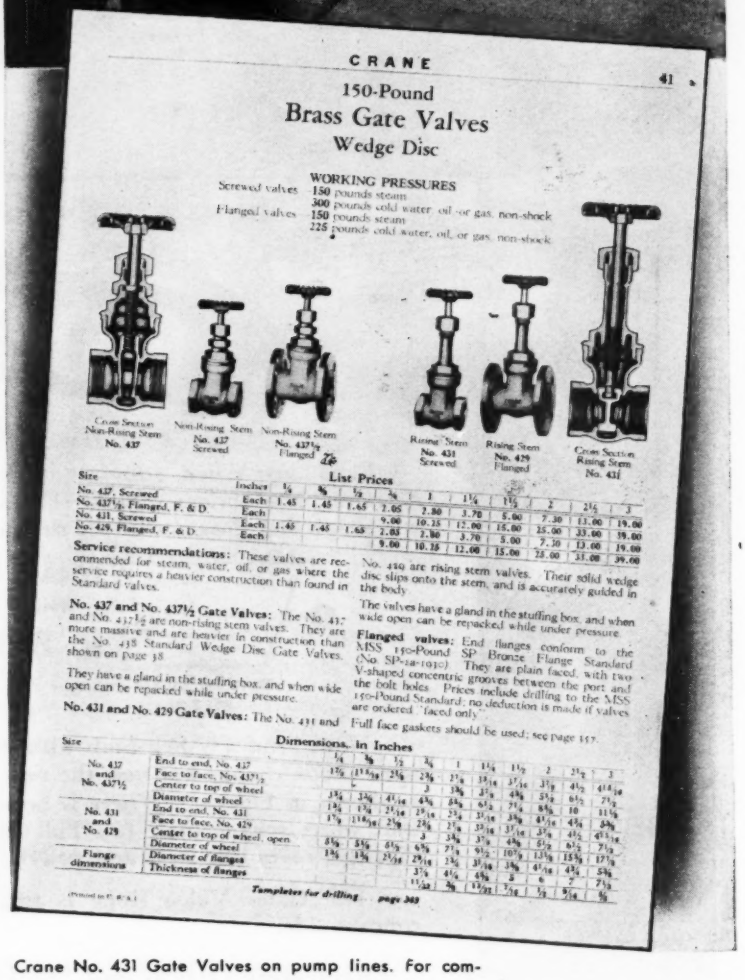
● The Crane No. 431 150-pound Brass Wedge-Disc Gate Valve can be relied upon to maintain its tightness and to give unusually long service with minimum maintenance.

Of heavier construction than "standard" valves and with ample clearances back of the threads to prevent the pipe from hitting the seat bridge wall, damage during installation is forestalled. Maintained tightness at the seat, despite frequent opening and closing, is assured by accurately machined and ground disc and seat surfaces. This reduces wear to a minimum and insures a longer life for the seat faces. Precision guides prevent rubbing action between the disc and seat during opening and closing.

Generous stem-thread engagement insures long life for the threads. A deep stuffing box with gland contributes still further to low maintenance costs as do also the strength and precision of all parts.

Try these valves on steam, water and other fluid lines for which brass-body valves are suited. Note what they save in maintenance and worry. The Crane line of quality valves and fittings meets every requirement of the textile industry. The Crane branch or distributor in your city can serve you.

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.



CRANE 41

150-Pound
Brass Gate Valves
Wedge Disc

WORKING PRESSURES
Screwed valves 150 pounds steam
300 pounds cold water, oil or gas, non-shock
Flanged valves 150 pounds steam
225 pounds cold water, oil, or gas, non-shock

Cross Section Non-Rising Stem No. 437 — Non-Rising Stem No. 437 Screwed — Non-Rising Stem No. 437½ Flanged — Rising Stem No. 431 Screwed — Rising Stem No. 429 Flanged — Cross Section Rising Stem No. 431

List Prices

Size	Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
No. 437, Screwed	Each	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00	
No. 437½, Flanged, F. & D	Each				9.00	10.35	12.00	15.00	25.00	33.00	39.00	
No. 431, Screwed	Each	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00	
No. 429, Flanged, F. & D	Each				9.00	10.35	12.00	15.00	25.00	33.00	39.00	

Service recommendations: These valves are recommended for steam, water, oil, or gas where the service requires a heavier construction than found in Standard valves.

No. 437 and No. 437½ Gate Valves: The No. 437 and No. 437½ are non-rising stem valves. They are more massive and are heavier in construction than the No. 428 Standard Wedge Disc Gate Valves shown on page 38.

They have a gland in the stuffing box, and when wide open can be repacked while under pressure.

No. 431 and No. 429 Gate Valves: The No. 431 and No. 429 are rising stem valves. Their solid wedge disc slips onto the stem, and is accurately guided in the body.

The valves have a gland in the stuffing box, and when wide open can be repacked while under pressure.

Flanged valves: End flanges conform to the ASSS 150-Pound SP Bronze Flange Standard (No. SP-58-1936). They are plain faced, with two V-shaped concentric grooves between the port and the bolt holes. Prices include drilling to the ASSS 150-Pound Standard; no deduction is made if valves are ordered "faced only."

Full face gaskets should be used; see page 157.

Dimensions, in Inches

Size		¼	⅜	½	¾	1	1¼	1½	2	2½	3
No. 437 and No. 437½	End to end, No. 437	1⅝	1⅝	1¾	2	2⅛	2½	2¾	3	3½	4
	Face to face, No. 437½	1⅝	1 11/32	2⅛	2⅜	2⅝	3 1/16	3 7/16	3⅞	4½	4 13/16
	Center to top of wheel	2	2	2	2	3	3⅜	3⅞	4⅝	5⅛	6½
	Diameter of wheel	1⅝	2⅜	4 1/16	4⅝	5⅝	6½	7½	8⅝	10	11⅛
No. 431 and No. 429	End to end, No. 431	1⅝	1⅝	2 1/16	2⅜	2⅝	3 1/16	3⅜	4⅛	4⅝	5⅛
	Face to face, No. 429	1⅞	1 11/16	2⅛	2⅝	3	3⅜	3⅞	4 1/16	4⅝	5⅛
	Center to top of wheel, open				3	3⅜	3⅞	4⅜	5⅛	6½	7½
	Diameter of wheel	2⅝	2⅝	4½	6⅝	7½	9½	10⅞	13⅛	15⅝	17⅞
Flange dimensions	Diameter of flanges	1⅝	1⅝	3 5/16	3 11/16	4⅛	4 15/16	5⅜	6	7	7½
	Thickness of flanges				3/16	7/32	9/32	5/16	11/32	3/8	7/16

(Printed in U. S. A.)

Templates for drilling page 340

Crane No. 431 Gate Valves on pump lines. For complete description, service recommendations, prices and dimensions see page 41, new Crane No. 52 Catalog.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVE., CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET

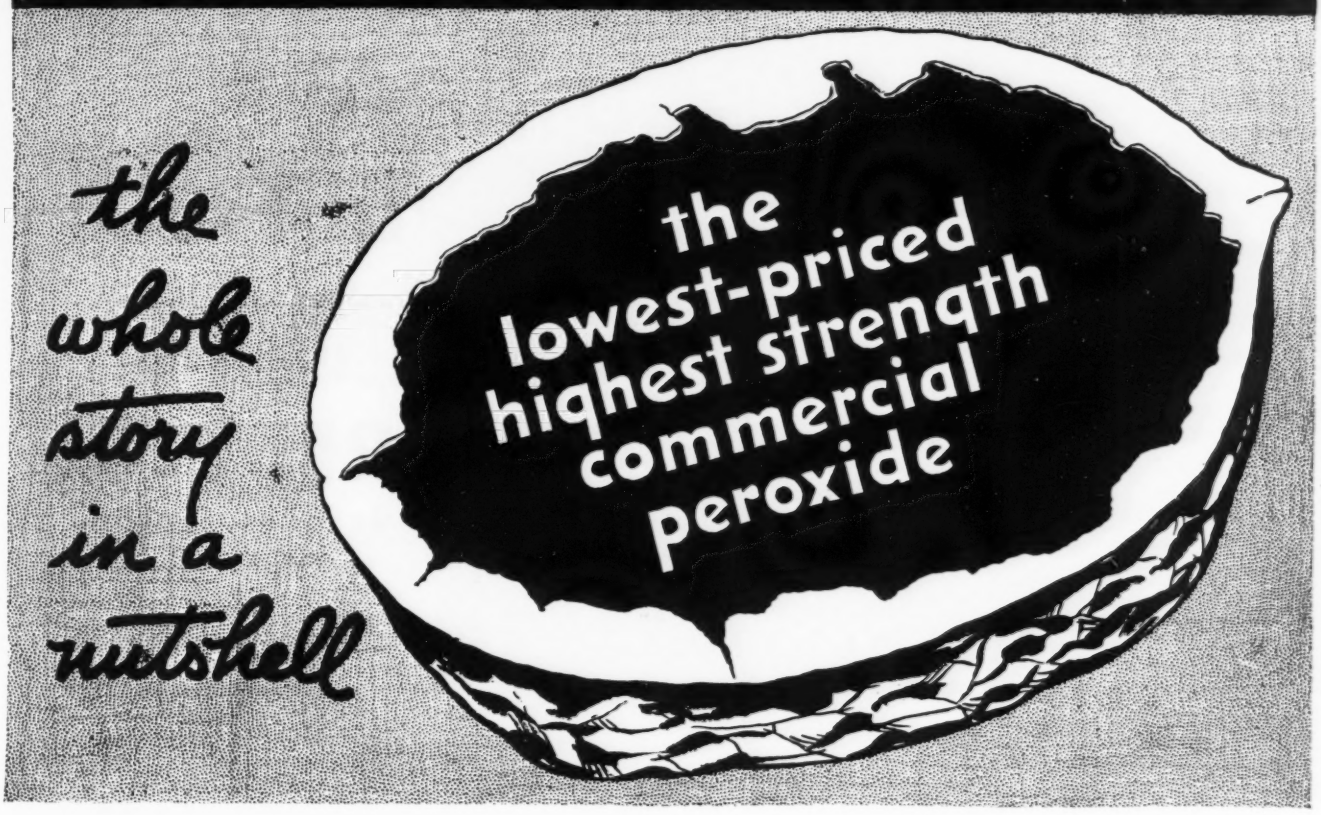
Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

SOLOZONE

REG. U. S. PAT. OFF.

DU PONT SODIUM PEROXIDE



By using SOLOZONE* (du Pont Sodium Peroxide) you get the lowest cost for bleaching oxygen. Actually you can save from 25 to 30% on peroxide costs, for SOLOZONE is the *lowest-priced, highest strength* commercial peroxide. You get more bleaching oxygen for less money.

For economical bleaching of all types of cottons, heavy and light goods, knits, yarn-dyed shirtings, sheeting, color piece goods and other goods with vat-dyed stripes or borders where clear ground and bright borders are wanted—use SOLOZONE. You get results with real economies on cottons as well as many other textile fibers.

★ ★ ★

One of our experienced technical men, located right in your district, will be glad to call on you and give you information on SOLOZONE and its application for bleaching.

Just write to our nearest district office.

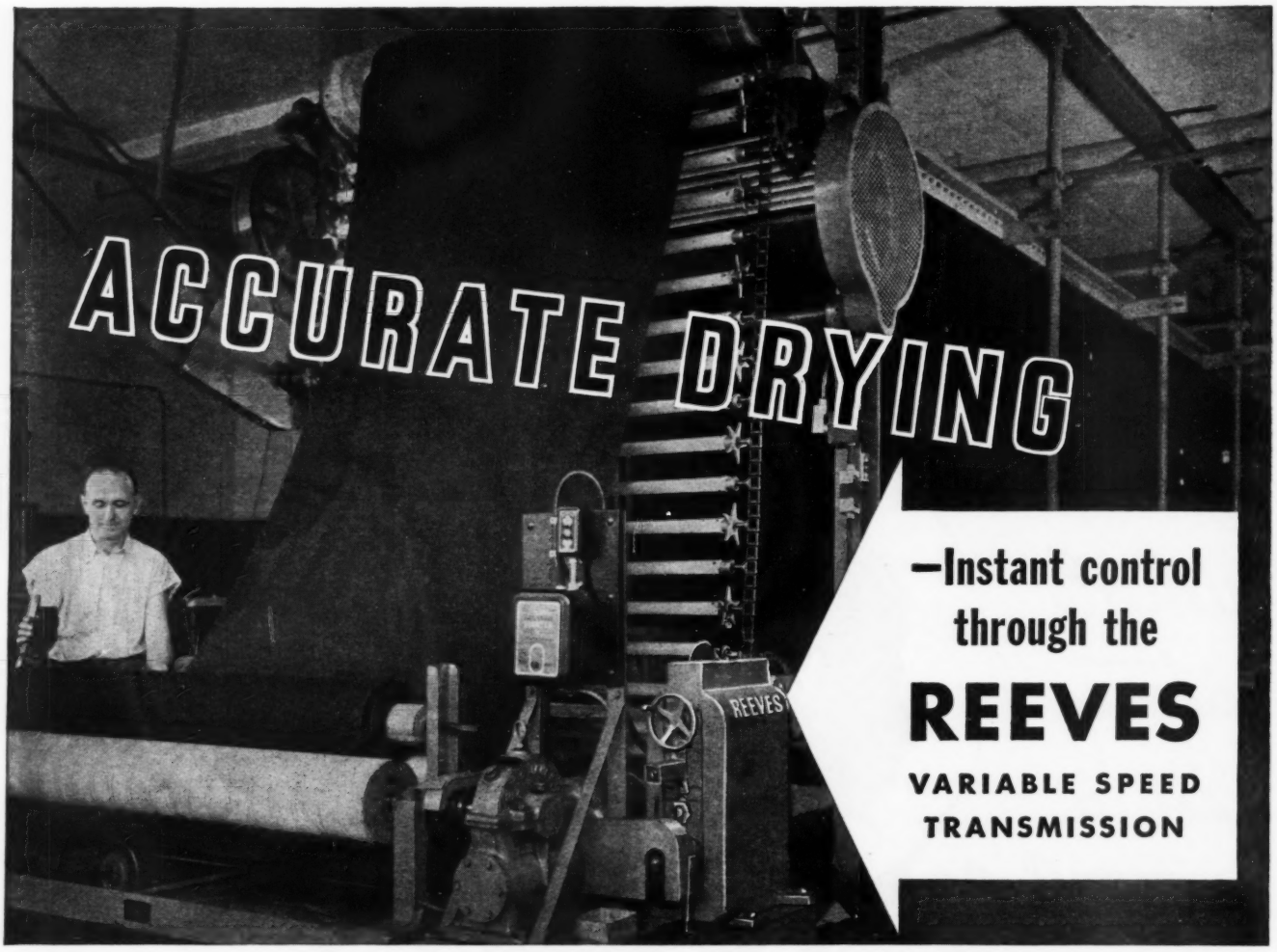
***SOLOZONE**

is the registered trade-mark for du Pont Sodium Peroxide—a stable water- and acid-soluble powder containing 20% available bleaching oxygen.

DU PONT
REG. U. S. PAT. OFF.

The R. & H. Chemicals Department
E. I. DU PONT DE NEMOURS & COMPANY, INC.
Wilmington, Delaware

District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco



Pictured above is a John Waldron Dryer at the plant of Howard Clothes, Inc., Brooklyn, N. Y. This dryer is used for pre-shrinking and for handling wet woolens. It is driven through a REEVES *enclosed, vertical design Transmission and a speed reducer, which provide any speed on the wind-up roll from 15.5 r. p. m. to 46.5 r. p. m.*

* * *

THERE is no guesswork about the timing operation of this dryer. It has the dependable, accurate, split-second speed control obtainable only through the *time-tested* REEVES Variable Speed Transmission.

Cloth is handled at exactly the proper speed—or timing—needed to secure the shrinkage desired and to insure synchronization with related processes. Merely by turning a convenient handwheel—and without interrupting production—the speed of the wind-up roll is increased or decreased to compensate *accurately* for different weights of cloth, widths, moisture content and other variables.

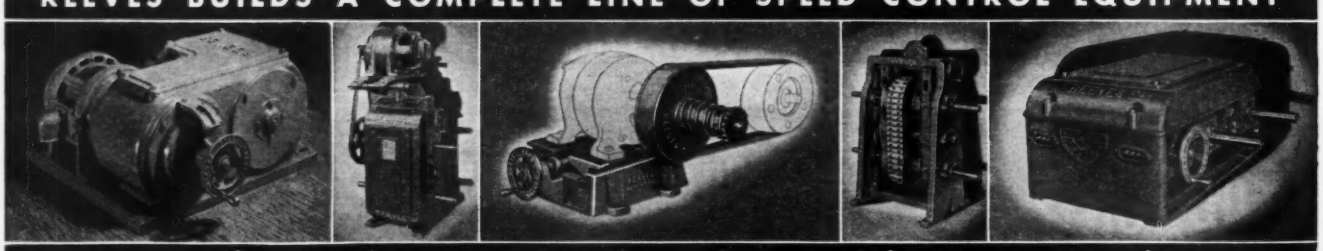
It is easy to see why the REEVES Transmission which provides this *sensitive* speed adjustability to any machine it regulates, is so widely used in the textile industry—for smoother, faster, more uniform production on beamers, warpers, slashers, tenter frames, dry cans, extractors, calenders, mercerizers, inspection tables—in fact on nearly any driven machine used in wool, cotton, silk and rayon preparation and finishing. With Automatic Control, the REEVES synchronizes machines perfectly, maintaining absolutely uniform tension on goods being processed or wound.

Most leading manufacturers of textile machinery now supply REEVES Speed Control as standard equipment. But it is easily applied to machines in service. Experienced REEVES engineers are at your service to assist you with any application. FREE copy of 112-page Speed Control Handbook T-36 is yours for the asking.

REEVES PULLEY CO., COLUMBUS, INDIANA

Originators of the Variable Speed Transmission and Recognized Leaders in Speed Control Engineering.

REEVES BUILDS A COMPLETE LINE OF SPEED CONTROL EQUIPMENT



A Correct Size, Design, Speed Ratio and Control for Every Requirement

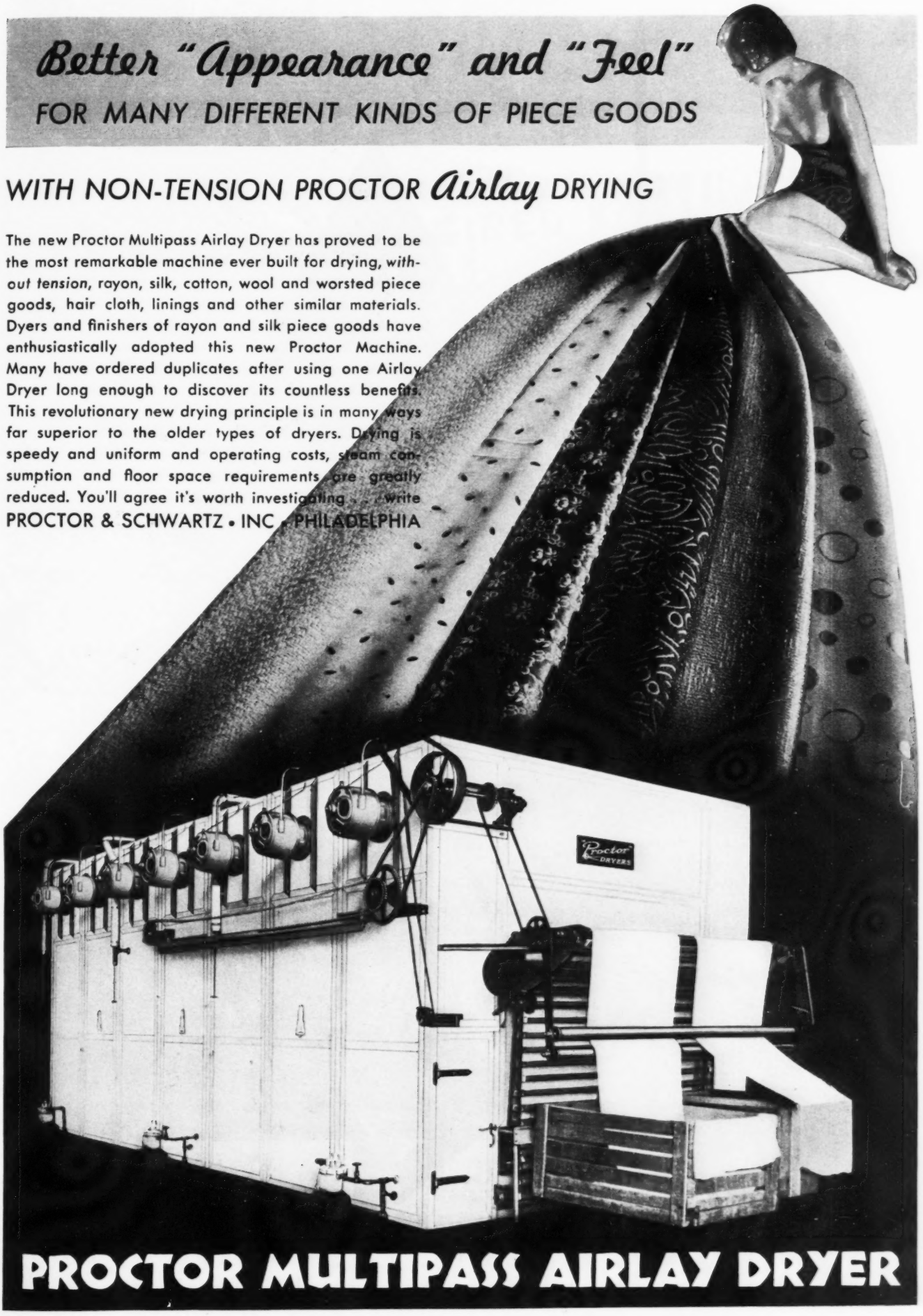
Better "Appearance" and "Feel"

FOR MANY DIFFERENT KINDS OF PIECE GOODS

WITH NON-TENSION PROCTOR *Airlay* DRYING

The new Proctor Multipass Airlay Dryer has proved to be the most remarkable machine ever built for drying, *without tension*, rayon, silk, cotton, wool and worsted piece goods, hair cloth, linings and other similar materials. Dyers and finishers of rayon and silk piece goods have enthusiastically adopted this new Proctor Machine. Many have ordered duplicates after using one Airlay Dryer long enough to discover its countless benefits. This revolutionary new drying principle is in many ways far superior to the older types of dryers. Drying is speedy and uniform and operating costs, steam consumption and floor space requirements are greatly reduced. You'll agree it's worth investigating . . . write

PROCTOR & SCHWARTZ • INC. • PHILADELPHIA



PROCTOR MULTIPASS AIRLAY DRYER

forward *with the* years

At the close of our thirty-fifth year, we look back, with gratification upon our success . . . with the determination that however great our progress, it shall be the foundation of still greater achievement. * * * Grateful to our many loyal friends, we sincerely desire to share with them another worth-while and still more prosperous year.

ARKANSAS CO. · INC.

MANUFACTURERS OF TEXTILE CHEMICALS

233 BROADWAY · NEW YORK

THIS stabilized azoic dyestuff produces full, bluish shades of red. It is the bluest red in the DIAGEN series and is recommended as a self-shade for bright prints on cotton. The textile printer will also find it of interest for use in combination shades requiring a red of this particular type.

DIAGEN Red M2B (Patented) possesses good application and fastness properties. It is particularly fast to power laundering with chlorine while it exhibits good resistance to washing and light.

The physical properties of DIAGEN Red M2B (Patented) are rigidly controlled. It is grit-free and finely milled. Danger of specking and scratching printing rolls is eliminated.

*Reg. U. S. Pat. Off.

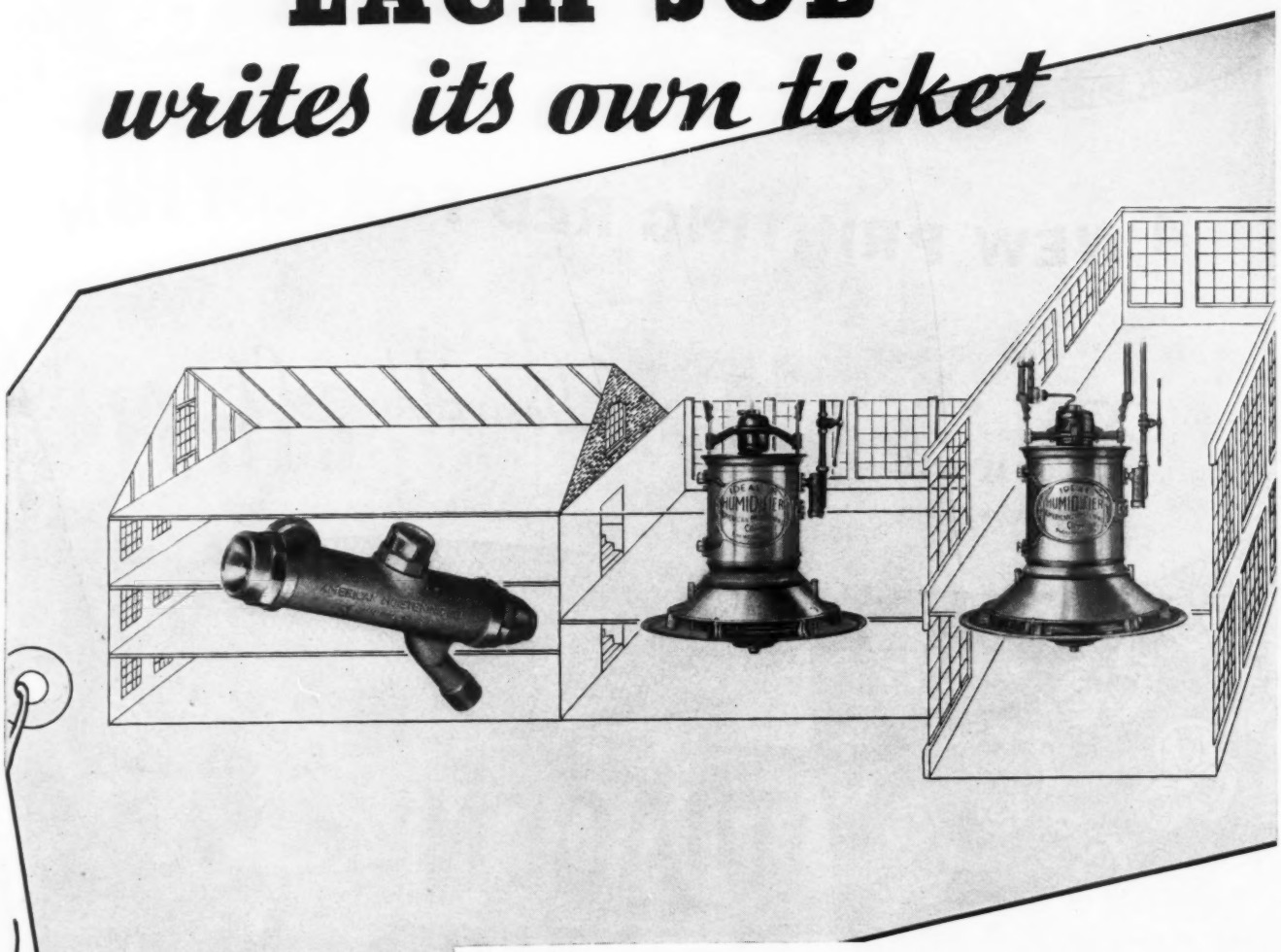
DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & COMPANY, INC.

ORGANIC CHEMICALS DEPT.
WILMINGTON

DYESTUFFS DIVISION
DELAWARE

EACH JOB
writes its own ticket



FOR THE AMCO ENGINEER

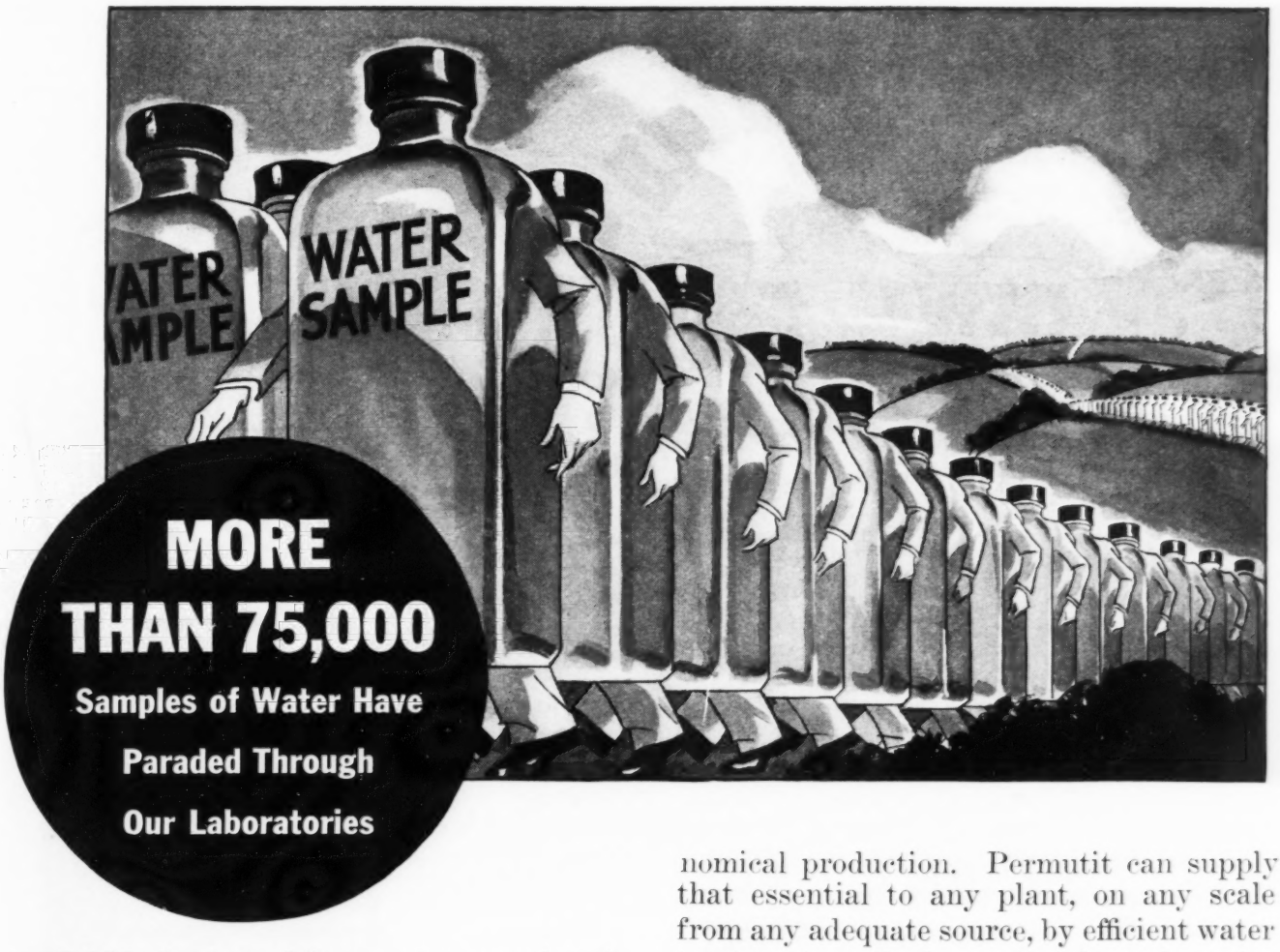
Many mills — perhaps your own — offer varied conditions like those illustrated, where a single humidifying device throughout simply *won't do.*

Ceiling height, for instance, may be an important factor. Suppose the old original building now houses carding machinery. Its low ceilings automatically call for Amco Self-cleaning Atomizers. The weave shed is a more modern building — its normal ceiling obviously specifies Ideal Junior Humidifiers. The brand new "ell" where modern spinning frames whir in a high, light room is the perfect spot for Ideal Senior Humidifiers.

Thus the Amco engineer, schooled by years of process studies of cotton, worsted and woolen manufacture, draws on the many tools in the wide Amco line for the one device exactly suited to each condition. Letting each job write its own ticket for equipment required, he assures the maintenance of adequate humidity in the operation of every manufacturing process. American Moistening Co., Providence, R. I., Boston, Mass., Atlanta, Ga., Charlotte, N. C.

AMCO HUMIDIFICATION

TAKE YOUR HUMIDIFICATION JOB TO A HUMIDIFICATION SPECIALIST



MORE THAN 75,000

Samples of Water Have Paraded Through Our Laboratories

FROM all parts of the country samples of water come to Permutit laboratories for analysis and recommendations.

Of the thousands of problems thus presented, few have been as difficult—or even as large, in terms of volume of water to be treated or actual dollars at stake—as those concerned with textile processing.

In scouring, dyeing and bleaching of wools—the degumming, weighting, bleaching and dyeing of silk—the manufacture and dyeing of rayon—the boiling-off, bleaching, dyeing and mercerizing of cotton—the use of clean, uniformly soft, iron-free water is essential to standardized quality and economical production. Permutit can supply that essential to any plant, on any scale from any adequate source, by efficient water treatment methods, materials and equipment.

There is another application—steam production. Here,—by supplying soft water for boiler feed — by furnishing Ranarex Mechanical CO_2 Meters for guidance to efficient boiler firing—Permutit has enabled mill managements to largely improve fuel economy, reduce boiler maintenance expense and increase availability of boiler capacity.

Write for special bulletin—"Reducing Textile Costs and Troubles." Address THE PERMUTIT COMPANY, Dept. B1, 330 West 42nd St., New York, N. Y.

Permutit

Water Conditioning

GRASSELLI FORMIC ACID

won't tender the most delicate fabric • yet exhausts the dye bath almost completely

There will never be any danger of tendering delicate fabrics when the formic acid used in the dye bath is GRASSELLI GRADE. The careful, accurate chemical control used in its production insures an unvarying uniformity in quality, free from sulphates and chlorides. Its crystal clearness remains the same, never darkening when exposed to the light.

Although it is always mild and safe, GRASSELLI Formic Acid, 85% and 90%, has the faculty of completely exhausting the dye bath. Being both an acid and an aldehyde, it has properties not obtainable with other exhaust agents—producing more brilliant colors in dyed fabrics, with no streaky or doudy effects, and always level colors even in cross dyeing. Any Grasselli branch can supply you quickly.

LET US ALSO QUOTE YOU ON

Acetic Acid	Epsom Salts
Acetate of Soda	Glauber's Salt
Acetate of Lead	Lactic Acid
Alums	Muriatic Acid
Aqua Ammonia	Nitric Acid
Barium Chloride	Oxalic Acid
Bi-Chromate of Soda	Phosphate of Soda
Bi-Sulphate of Soda	Silicate of Soda
Bi-Sulphite of Soda	Sulphate of Soda, Anhydrous
Carbonate of Soda	Sulphite of Soda
Caustic Soda Solid and Flake	Sulphide of Soda
Chloride of Lime	Sulphuric Acid
Chloride of Zinc	Tri-Sodium Phosphate

E. I. DU PONT DE NEMOURS & COMPANY, INC.
GRASSELLI CHEMICALS DEPARTMENT
Wilmington, Delaware

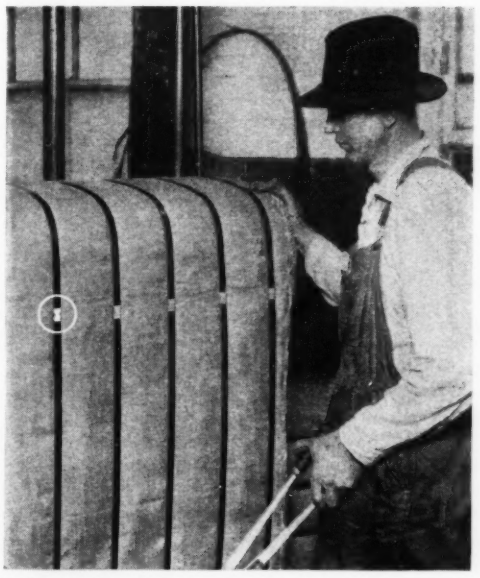
DUPONT REG. U.S. PAT. OFF.

GRASSELLI

Albany Birmingham Boston Charlotte Chicago Cincinnati Cleveland Detroit Milwaukee New Haven New Orleans New York Philadelphia Pittsburgh St. Louis St. Paul
San Francisco, 564 Mission St. Los Angeles, 2260 E. 15th St.
Represented in Canada by CANADIAN INDUSTRIES, LTD., General Chemicals Division, Montreal and Toronto

Here's the Acme SEALED JOINT that Makes Your Textile Shipments "Bound to get there"

REG. U. S. PAT. OFF.



Acme Bale Ties on the job—with the Acme Sealed Joint playing an important part. Neat, secure, economical.

QUICK to seal—permanently secure—the Acme Sealed Joint holds Acme Steelstrap around your textile shipments in a manner that means safe and economical shipping packages.

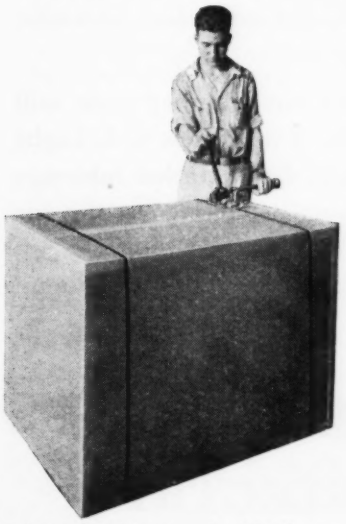
Bales, boxes, bundles—every kind of package used in the textile industry is a "natural" for the Acme Steelstrap system.

Often, a lighter-weight container can be used and protective strength actually increased. Packages can be prepared for shipment in less time. A better-looking, more easily opened package is provided.

I've served so many textile people from south to north that I'm almost a millman myself. Write me today about the products you ship. Ten to one I can suggest efficiencies and economies—based on my long experience. And I'll send a copy of my NEW STRAP-BOOK—just off the press.

Doc. Steelstrap

Here's my patented (Patent No. 2,033,201) Annular Wrap which is the reason Acme Steelstrap reaches you in spotless, sparkling, shining condition—no danger of soiling hands or products being packed.



Acme Steelstrap makes big fibre cases secure against damage and pilferage—and helps provide lower-cost shipments.

Acme Steelstraps

ACME STEEL COMPANY, GENERAL OFFICES: 2847 ARCHER AVE., CHICAGO

ATLANTA NEW ORLEANS SAN FRANCISCO BOSTON NEW YORK

Branches and Sales Offices in Principal Cities

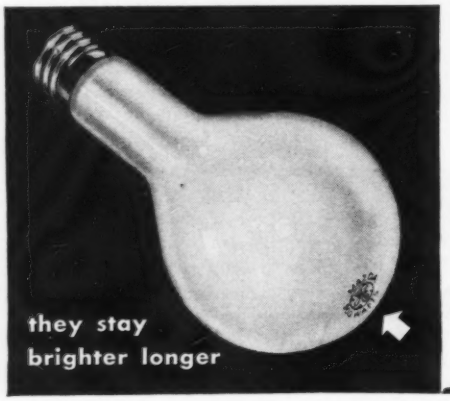
9 BIG ADVANTAGES OF BETTER LIGHTING IN COTTON TEXTILE MILLS

● *This textile mill uses good light to speed production and guard the eyesight of employees.*

1. An appreciation in the quality of goods as a whole.
2. Reduction of seconds.
3. Better supervision because of a reduction in serious breaks.
4. Better cleaning and maintenance of machinery.
5. Eyesight conservation.
6. Attraction of a better class of employees.
7. Fewer accidents.
8. Improvement of morale because of bright and cheerful working conditions.
9. Over a period of time an increase in production which may be sufficient to offset added lighting cost.

USE THE G-E LIGHT METER TO MEASURE MILL LIGHTING

The General Electric Light Meter measures light as simply as a thermometer measures temperature. Costs only $11.50. For detailed information, write to General Electric Company, Dept. 166, Nela Park, Cleveland, O.



STUDIES recently made by the Illuminating Engineering Society in the cotton textile industry indicate that scientific lighting in mills can provide definite advantages.

Today it is a simple matter to find out whether your mill meets modern safe seeing standards. With a new G-E Light Meter you can measure the lighting. For detailed information on how much light the various departments of your plant should have for the specific seeing tasks carried on, write to the nearest General Electric Incandescent Lamp Sales Division Office.

EDISON MAZDA LAMPS

GENERAL ELECTRIC

Condor
TRADE MARK REGISTERED
Compensated
PATENTED

Condor Compensated Belt on a card room drive in a prominent textile mill

THE LOW TENSION RUBBER BELT WITH EQUALIZED PLY STRESSES

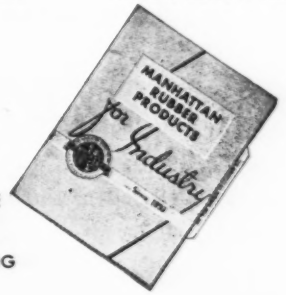
In the construction of Condor Compensated Belt new engineering principles are utilized: the belt is made to conform to the pulley curvature. Instead of the outside plies bearing an overload and rupturing, *all* the plies share equally in bearing the stresses which are developed at the arc of contact, when the belt is flexed around the pulleys under high tension. In addition, the belt has a special pulley surface which permits the belt to be run at much lower tension than other belts. Results: longer belt life and freedom from mechanical troubles, with other advantages listed below. And the net result of all these advantages to you is: *Lower Power Transmission Costs.* Textile manufacturers are enjoying these advantages through the use of Condor Compensated Belt on the wide variety of drives found in the industry.

Condor PRODUCTS

V-Belt	Steam Hose
Transmission Belt	Suction Hose
Cone Belt	Molded Rubber Goods
Air Hose	Oilless Bearings
Acid Hose	Hard Rubber Pot Eyes
Water Hose	Rubber Lined Tanks
Fire Hose	Rubber Covered Rolls

12 Advantages

1. Ruptures in outside ply practically eliminated
2. Ply separation practically eliminated
3. Longer fastener life
4. Operation less affected by atmospheric conditions
5. Less bearing, shafting, and hanger troubles
6. High efficiency
7. Higher overload capacity or margin of safety
8. Less wear on pulley side
9. Can be operated on smaller pulleys
10. For heavy loads, plies may be increased with same pulleys
11. Can be dressed without destructive effect
12. Material reduction in belting costs



WRITE FOR NEW CATALOG

SOLD BY LEADING JOBBERS

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES and FACTORIES, 23 TOWNSEND ST., PASSAIC, N. J.

Twelfth

SOUTHERN TEXTILE EXPOSITION

●

TEXTILE HALL
GREENVILLE, S. C.
APRIL 5 TO 10, 1937

●

NEW and improved machinery, installations, accessories, and supplies will be shown by the leading manufacturers of America.

Interesting technical meetings will be held during show week.

Low railroad rates are now in effect. From Greensboro on the north, and Atlanta on the south, there will be nightly Pullman service. These cars will be parked in Greenville next day, and returned at midnight.

Travelers by automobile will find improved highways from every section of the South.

Please write Housing Committee for room reservations. All visitors may obtain comfortable quarters.

TEXTILE HALL CORPORATION

REMEMBER THE DATES

APRIL 5 TO 10, 1937

ANNOUNCING

THE NEW Veeder-Root

RESETTING 2-3 HANK COUNTER

ADD THE 3rd SHIFT *at your mill*

WITH 3 SCREWS

Standard counter has 3 figure wheels—one wheel in red figures to register tenths of hanks. Also furnished specially with four wheels—two in red figures to register hundredths of hanks. Forked coupling drive standard for spinning and roving frames.

patents pending

Now, for spinning and roving frames, the new Veeder-Root 2-3 HANK Counter provides the same flexibility and interchangeability that the famous Veeder-Root 2-3 Pick Counter is already providing in mills throughout the country.

This new Veeder-Root advancement in hank counter design gives you what you need today. And it safeguards your investment by giving you—when you need it—a complete 3-shift counter. You convert it yourself, in your own mill, with 3 screws and the 3rd shift unit. Cost of the complete, converted 3-shift counter is only a trifle more than the cost of a counter originally built for 3-shift operation.

The new 2-3 Hank Counter again proves Veeder-Root's leadership in textile counter design—design that meets today's requirements and anticipates future possibilities. Make a note, now, to see the new 2-3 Hank Counter. See how easily it's converted, how much time and money it saves. The Veeder-Root office near you will arrange to demonstrate this new counter. Write for a Veeder-Root representative to call.

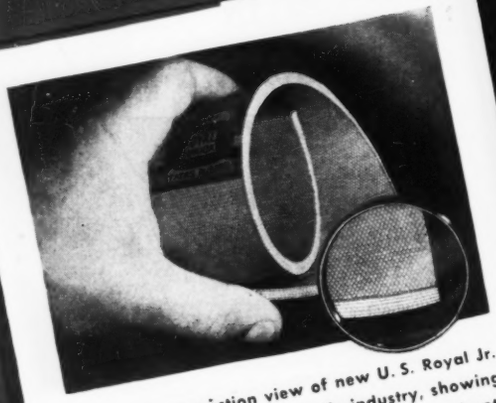
VEEDER-ROOT INCORPORATED

HARTFORD, CONN. GREENVILLE, S. C.

BOSTON · PHILADELPHIA · MONTREAL · LONDON

BUILDERS OF COUNTING DEVICES SINCE 1878

THRIVES ON HIGH SPEEDS,



Close-up cross-section view of new U. S. Royal Jr. Transmission Belt for the textile industry, showing construction features of flexible layers of tough cotton duck thoroughly impregnated with live rubber.

This machine accurately determines the efficiency of U. S. Rubber Transmission Belts under varying tensions. It measures with mathematical precision the horse-power delivered by the belt at different speeds and under working conditions simulating actual textile mill use. This is one of the tests from which the new U. S. Royal Jr. Belt was developed.

FORESTS OF BELTS

Every textile mill is literally a forest of belts, powering cards, spinners, and looms. U. S. Royal Jr. Belts are designed to meet the requirements of every type of textile drive, giving outstanding performance despite high speeds, crossed drives, and frequent shifting.

CROSSED DRIVES, SHIFTING!

New

U·S·ROYAL JR.

A Textile Belt Made of Textiles for Textile Industry Use

The new U. S. Royal Jr. is typical of U. S. Rubber's pioneering in the creation of new products that cut costs, eliminate waste, and speed production for industry.

Mill superintendents find the new U. S. Royal Jr. Belt a constant source of satisfaction because of its widespread application to many different drives . . . because it requires a minimum of care . . . because it thrives on high speeds, crossed drives, and shifting. Operators like the feel, the case, the remarkable responsiveness of this rubber and textile belt to the job. And the entire textile industry welcomes a superior transmission belt made chiefly from the product of its own mills.

Into every foot of U. S. Royal Transmission Belting is built proved product value . . . proved performance value and the matchless engineering skill and special knowledge of the chemistry of rubber possessed by U. S. Rubber. That is what we mean when we say that U. S. Royal Jr. and other U. S. Rubber Mechanical Goods have built into them—

SERVICE BEYOND PRICE AND SPECIFICATIONS

GET THIS NEW ALBUM—FREE!

This new book "An Album of Familiar Belts" illustrates and describes U. S. Rubber Transmission Belts in the making, and at work. Send for it . . . it is free.

UNITED STATES RUBBER COMPANY

TRADE MARK

United States Rubber Company

THE BLAZED TRAIL NOW A TRAVELED HIGHWAY...

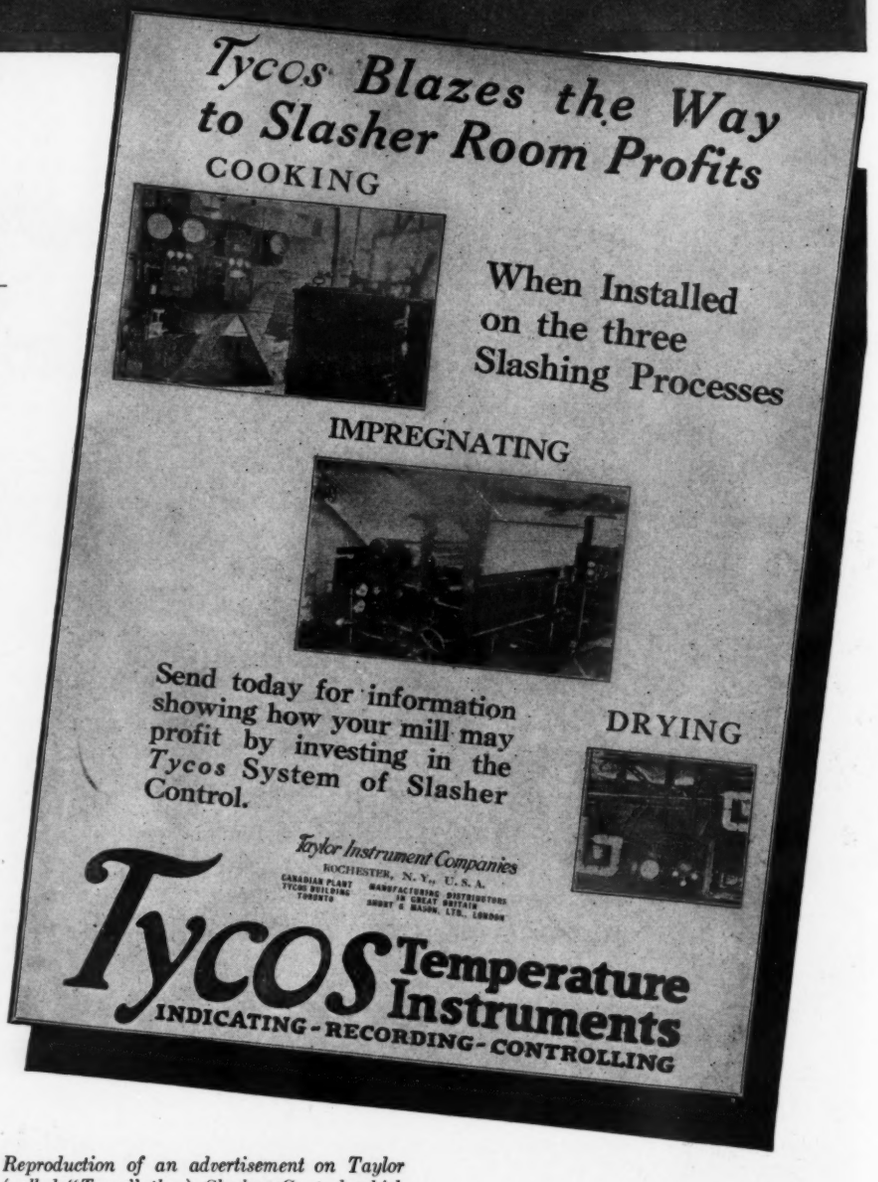
Even before this advertisement appeared years ago, Taylor Engineers pioneered a System of Slasher Control and showed mills a new way to profit

IT does not take long for a blazed trail to become a well-worn path . . . and then a busy highway—when there is good reason for people using it.

Taylor Engineers more than ten years ago blazed a new trail for textile mills. With a newly developed System of Slasher Control they laid out a way that led to greater Slasher Room profits. Mills proved that the path led to advantages in slashing and finishing and to economies that they had never enjoyed before, and others followed along the same way.

Today Taylor Systems of Automatic Slasher Control in many mills throughout the country watch every step in the process from composition of the size to final drying of the yarn. They deliver ideally conditioned **warps** that assure more unifcrm finished goods and a minimum of seconds. They save money on raw materials and bring in more profit on finished products. They more than pay for themselves in a remarkably short time.

This wealth of experience in every phase of Slasher Room Control is at your service. Every Taylor System is engineered to meet the exact mill conditions and to achieve definite results. For complete information on thisTaylor Control and Taylor Service, ask a Taylor Representative. Or write to Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.


Tycos Blazes the Way to Slasher Room Profits
COOKING
When Installed on the three Slashing Processes
IMPREGNATING
Send today for information showing how your mill may profit by investing in the Tycos System of Slasher Control.
DRYING
Taylor Instrument Companies
ROCHESTER, N. Y., U. S. A.
CANADIAN PLANT TYCOS BUILDING TORONTO
MANUFACTURING DISTRIBUTORS IN GREAT BRITAIN SHORT & MASON, LTD., LONDON
Tycos Temperature Instruments
INDICATING - RECORDING - CONTROLLING

Reproduction of an advertisement on Taylor (called "Tycos" then) Slasher Control which appeared in Textile Magazines early in 1928. Pioneering work on this Control System started several years before.

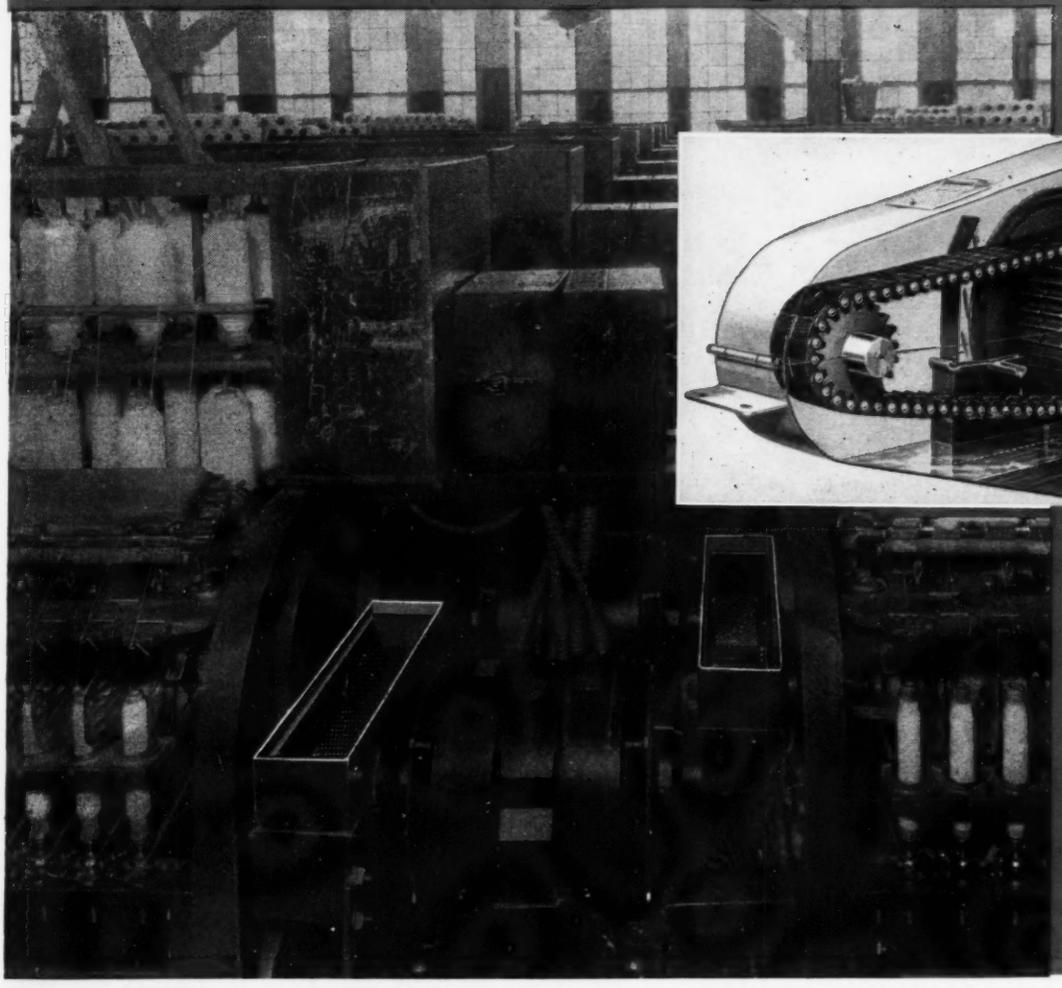
• • •

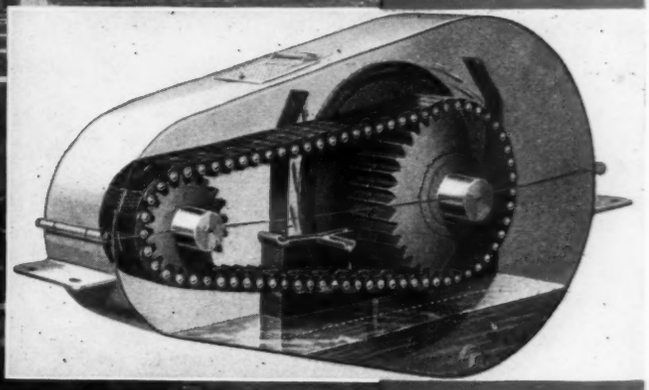
Taylor

Indicating / Recording • Controlling

TEMPERATURE, PRESSURE *and* **FLOW INSTRUMENTS**

Only 50c Spent on 72 Drives in 9 Years...





ABOVE:
The modern Tex-Tll oil-leak-proof casing, which provides drop-by-drop lubrication, absolutely prevents oil leakage and assures a cool-running drive.

● Nine years of practically continuous service, with only 50c spent for repairs. That is the record of 72 Link-Belt silent chain drives which operate spinning and twisting frames at Habersham Mills, Habersham, Georgia. They have seen 24 hour per day service during most of that time.

The smooth, positive (no-slip) action of these drives has held power consumption to a minimum, maintained the full productive capacity of the frames, and overcome in a large part the danger of mechanical interruptions to mill activities. Link-Belt Company, Indianapolis, Chicago, Philadelphia, Atlanta, San Francisco, Toronto. Offices located in all principal cities.

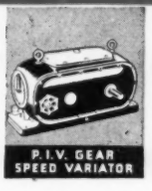
LINK-BELT
*SILVERSTREAK SILENT CHAIN DRIVES

*T. M. REG. U. S. PAT. OFF.

LINK-BELT *positive* DRIVES INCLUDE

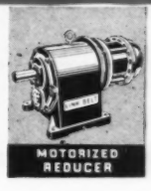
SILENT CHAIN DRIVE

ROLLER CHAIN DRIVE


P.I.V. GEAR SPEED VARIATOR

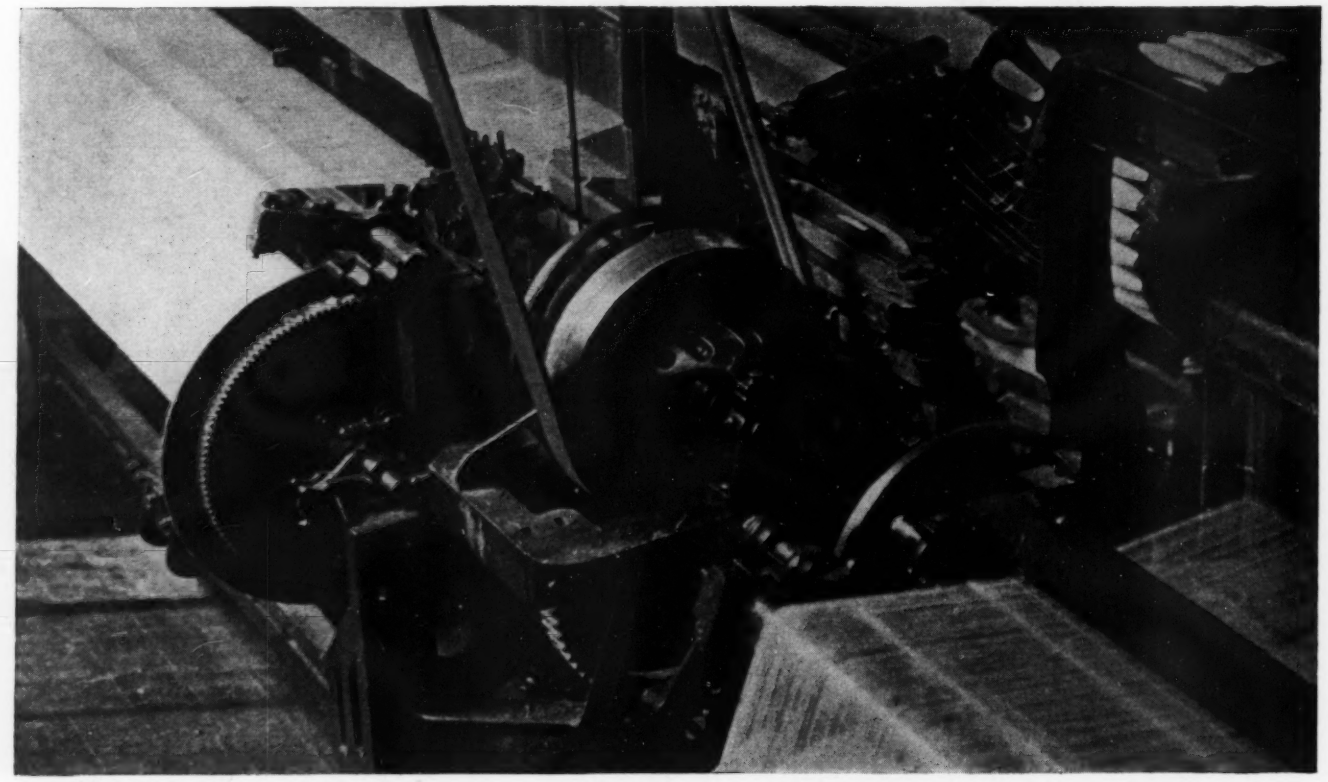
V.R.D. VARIABLE ROLLER DRIVE

HERRINGBONE GEAR REDUCER


MOTORIZED REDUCER

WORM GEAR REDUCER

Faster—with Energy Drive



The mill operating this "X" Model loom and 107 others equipped with the new Energy Drive mechanism has increased speeds on these looms from 180 p. p. m. to 193 p. p. m. A protracted comparative test in this mill between 70 Energy Drive looms and 70 Unit Drive looms under identical conditions showed greater total production and less variation in production from loom to loom, with Energy Drive.

Energy Drive is a new tool enabling the textile industry to increase production, improve quality and lower cost. It is a simple, inexpensive mechanism which makes possible greater speeds with uniform shaft rotation.

This new Modern Group Drive development applied to "X" Model looms offers not only higher weave room production at lower cost but the four economies of Modern Group Drive as well: lower investment, operating, maintenance and power costs. If yours is not one of the 36 mills in which Energy Drives have already been installed, get further facts at once.

POWER TRANSMISSION COUNCIL
Suite G-3. 1765 PEACHTREE ROAD, ATLANTA, GA.
A research association of producers and distributors of power, power units and mechanical equipment for transmitting power.

MODERN GROUP DRIVE PTC

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MODERN GROUP DRIVE

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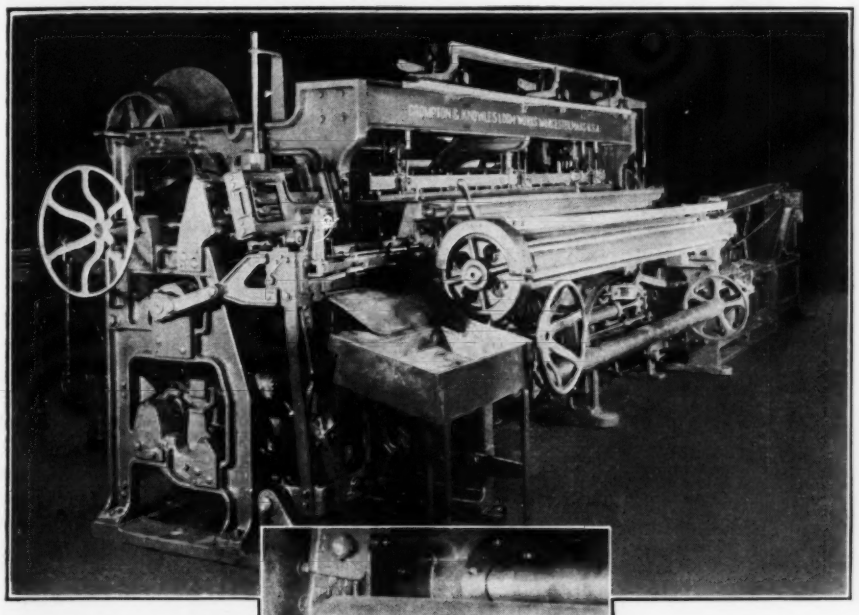

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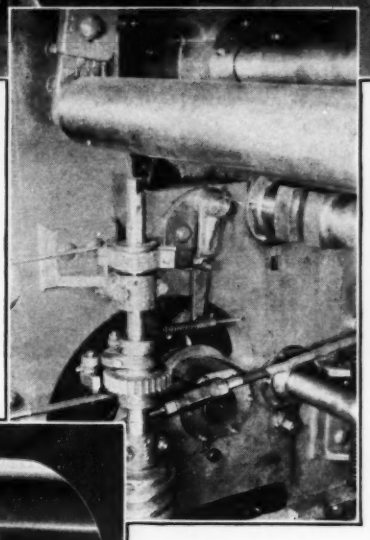

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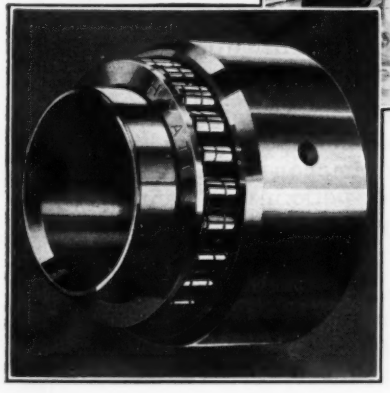

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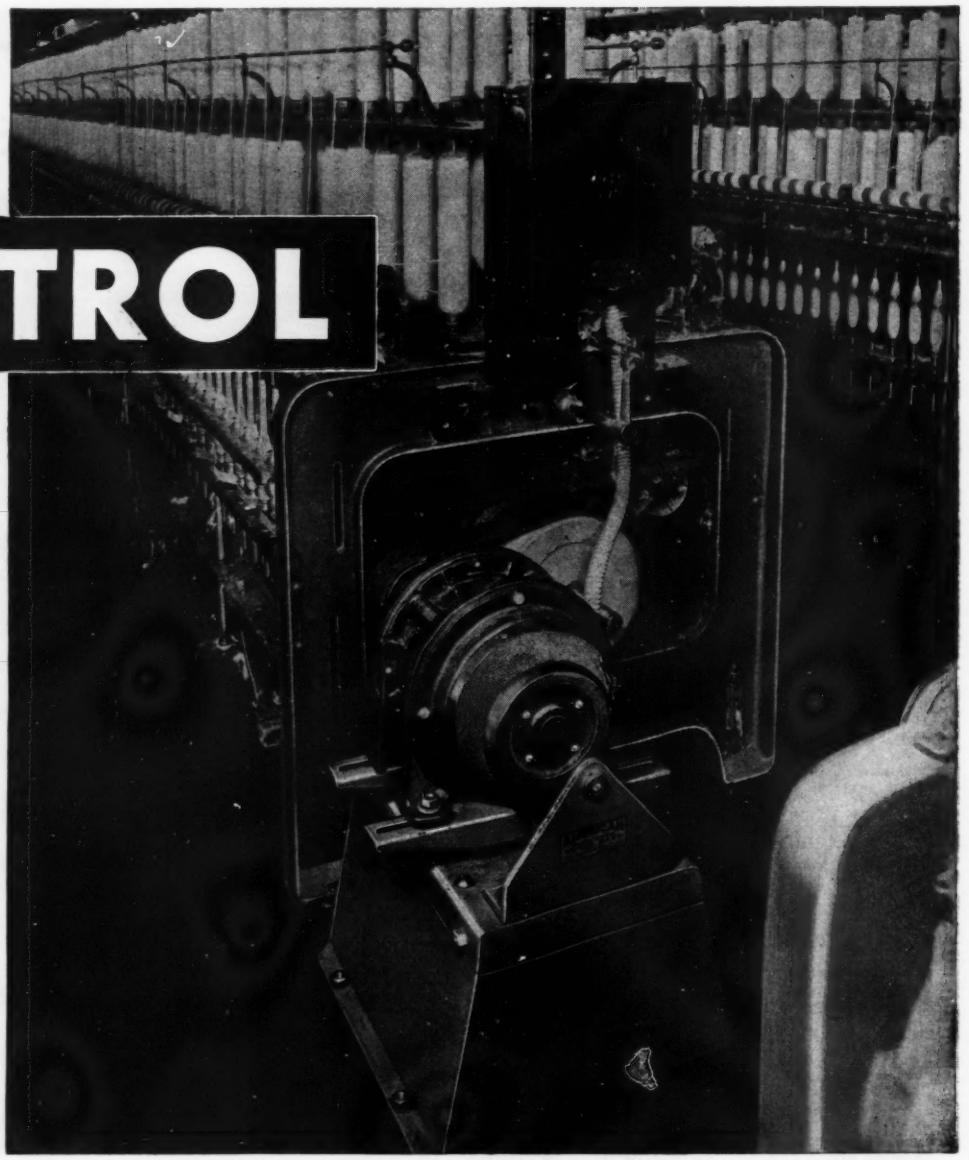

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Vol. 100 No. 12

COTTON

DECEMBER, 1936

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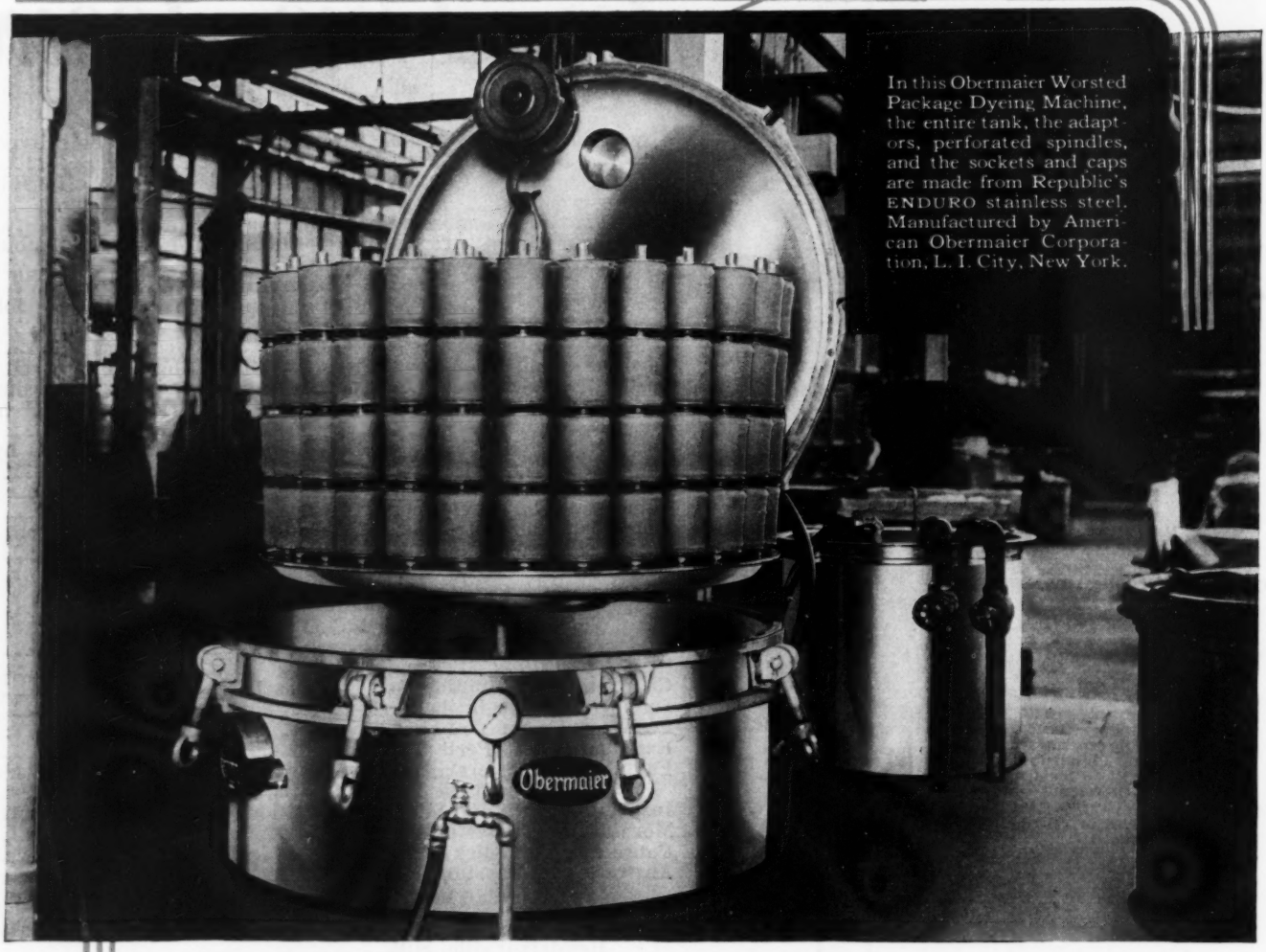

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Vol. 100
No. 12

COTTON

December,
1936

How the Payroll is Handled at the Pepperell Plant in Fall River

By Blanchard W. Cleland*

THIS article, with the illustrations, describes how Pepperell uses its new payroll accounting machines for producing four records—pay check, employees' statement, earnings record and payroll summary—in one operation.

The system used is prompt, accurate, and uncomplicated. Of value within itself, it assumes especial importance in the light of the records required by social security legislation . . . .

TWO SHIFTS of workers, each about 400 strong, are filing past the time clocks daily at Pepperell Manufacturing Company's fine goods mill at Fall River, Mass. Additional thousands of men and women stream into the company's mills at Biddeford, Me., Lindale, Ga., and Opelika, Ala., and into the finishing plant at Lewiston, Me.

With a total of approximately 7,500 employees on its payrolls in plants located in four states, Pepperell Manufacturing Company has had a man-sized payroll accounting problem to perform weekly. And at the first faint rumblings of Social Security legislation, Pepperell detected a warning that some day its payroll accounting would have to be altered to produce detailed records for state and federal governments.

Shortly after the Social Security Act became a law (August 14, 1935) to provide mainly for unemployment insurance and old-age pensions, Pepperell made an exhaustive study of payroll systems and put certain changes into effect in the five plants operated by the company. The changes in payroll routine are characterized largely by these three contrasts with former methods: 1. Pay is by check instead of by cash in northern mills. 2. Week-by-week records of each employee are kept on individual ledgers (as well as on a summary sheet) instead of only being grouped on large time sheets. 3. Record-keeping, check-writing, and check-signing are performed mechanically—manual operations have been limited to a low number.

But these are more than characteristics. They are a few of the results achieved by the change-over. To see how these results have been brought about—and to gain a clear picture of Pepperell's payroll system—let us observe the preparation of the payroll and the pay-

*Burroughs Adding Machine Company.

An aeroplane view of Pepperell's Fall River mill. The mill employs approximately 800 workers and produces both cotton and rayon goods . . . .

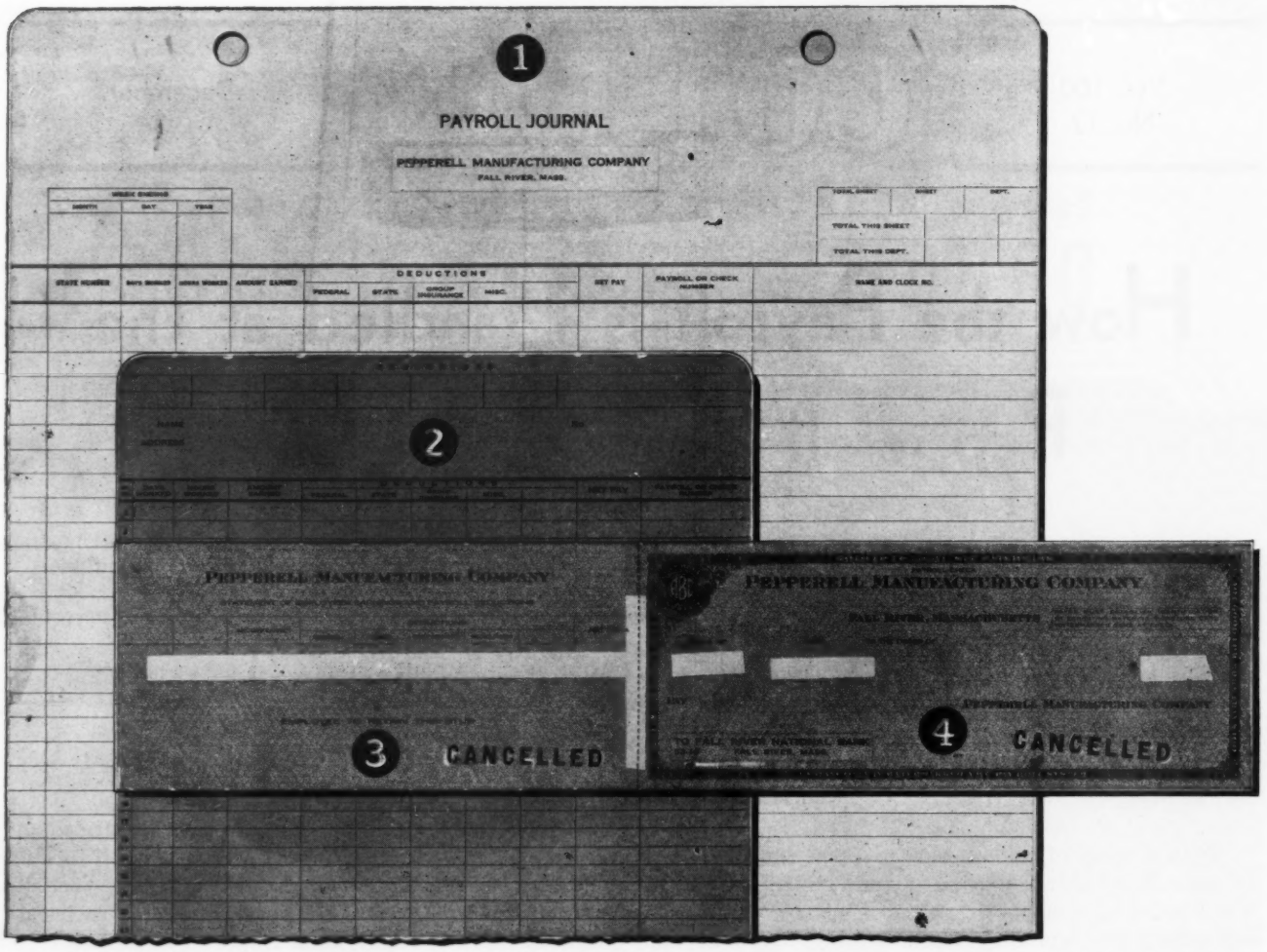


Fig. 1, the payroll journal; Fig. 2, the earnings record; Fig. 3, the employee's statement; and Fig. 4, the employee's check—all produced at one operation . . . . . .

ing off of the workers at one of the plants.

For this observation Pepperell suggested that a visit be made to its Fall River mill, which is located about 50 miles from the executive offices in Boston. Equipped with the finest manufacturing machinery which can be obtained and engaged in the production of both rayon and cotton cloth, the Fall River plant amounts almost to a cross-section of Pepperell's operations. It has neither the smallest number nor the largest number of workers; it is average in this respect. Its payroll problem, therefore, can be considered typical.

Between the punching of the last time clock card for the week and the succeeding Thursday, which is pay day, the entire payroll has to be handled. Actually, as far as the front office is concerned, payroll work does not begin until about Monday noon when the first time sheets are received from the mill departments. From Monday noon until Wednesday the payroll work proceeds at a merry clip under the supervision of the office manager at Fall River, who has the services of trained helpers and modern office machines.

Departmental time sheets are the original sources from which the final payroll information is compiled. Workers are listed on the sheets according to occupation within a department. Their names are followed by the number of hours worked (or the production, if it is piece work) and the number of days. Each person's pay is figured in the department, although it is re-calculated and checked in the office. Kept up-to-date, the time sheets are sent to the front office as soon as the extensions are put on them at the close of the pay period.

Upon receipt of the filled-in time sheets in the office, a young woman checks the names and numbers them in sequence. Changes in the employment roll—dismissals, transfers, and additions of new names—are made as they occur and the office notified. When she knows that the names are in correct order and that no employee has two numbers even though he alternated jobs during the week, the operator is ready for a final check of the extensions.

With the calculations on the time sheets proved, the next step—and this is the bulk of the payroll accounting—is to write the employee's check, make a statement to be retained by him, build up, week after week, an individual earnings record for the company's reference and use, and print this information about each employee into the summary of the entire payroll. As formidable as that sounds, all four records—check, employee's statement, company's record of each individual, and payroll summary—are produced at one operation on Pepperell's new payroll accounting machines.

Illustrations accompanying this article show the

relative position of the four records as they appear when in the machine. The payroll journal of summary, Fig. 1, is on the bottom or nearest the platen. It is inserted around the platen of the machine and remains there until the last line is filled or a department completed. (Automatically accumulated totals are printed on this form when the last check is written.) A wide sheet of carbon paper is placed in front of the journal, that is, between it and the individual earnings record. The journal is a copy of the various individual earnings records. The earnings record is marked Fig. 2.

The employee's statement, Fig. 3—it might be called a check stub—is next to the earnings record. Spot carbon behind the printing line of the check stub makes the figures print on the earnings record. Therefore, both the journal and the earnings records are direct copies of the employee's statement.

The amount of the net pay is repeated on the remaining form, Fig. 4, the employee's check.

At the end of the posting, the operator—by depressions of a key—prints the totals of hours worked, gross amount earned and net amount paid. These totals are checked against the pre-figured and proved totals which are on the time sheets.

Satisfied as to the accuracy of her work, the accounting machine operator files the journal sheets, puts the earnings record trays away (each record, incidentally, accommodates week-by-week reports for a full year), and turns over the employee's statements and checks to the person who runs them through a check-signing machine.

This is a view of one section of the rayon weave room at the Pepperell Fall River mill .

Pay day arrives. The checks are distributed to the slasher tenders and weavers, the loom fixers and spinners, and the rest who make up the 800 mill workers.

Those are the high spots of Pepperell's payroll plan. Its application varies only slightly from plant to plant. In the larger plants, the payroll accounting machines (built by Burroughs Adding Machine Company) are devoted full time to payroll work. In the smaller plants, a different style of Burroughs machine is operated part time on payroll and the remainder of the time on other accounting which requires both computations and typewritten description.

Pepperell's new payroll accounting machine which produces four records—check, employee's statement, earnings record, and payroll summary—in one operation . . . .

In conclusion, readers are referred again to the display of forms in this article. The column headings indicate that the plan was designed, machines were built and forms were drawn up with an eye to the future. For evidence of this, note that provisions have been made for recording payroll deductions—state, federal, group insurance, and miscellaneous. And state and federal deductions are synonomous with Social Security reports!

Pepperell will be in a position to prepare reports quickly for unemployment insurance and old-age pensions because it will have all of the essential information about each worker on an individual earnings record. Monthly, quarterly or annual reports can be made simply by summarizing and copying what appears on the earnings records.

Although Social Security contributions will not be a factor on employee records in Massachusetts until January 1, 1937, the machine's ability to record deductions as easily as it now records earnings may become its most worthwhile feature.

It takes a bigger man to apologize than it does to fight.

It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy.

The evils that card grinders do live after them.

Nothing is easier than fault-finding; no talent, no self-denial, no brains, no character are required to set up in the grumbling business.—Robert West.

"Don't think you are a failure because you are not piling up wealth. If you are honest, industrious, square; if you are cheerful under difficulties, helpful and inspiring to everybody about you; if you are taking every opportunity to improve yourself; you are infinitely more successful than a greedy, hard, selfish millionaire."

Making Yarns and Cloth from RAYON STAPLE

ARTICLE 1

How to run this new fiber alone, and in combination with cotton, on regular cotton mill machinery . . .

By Edward King

A sample of cut rayon staple . . .

THIS comprehensive and practical discussion of spun rayon staple, and how to spin it on cotton mill machinery alone or in combination with cotton, will answer many of your questions on this timely subject.

The origin, manufacture and characteristics of this new fiber, some of its many uses, and detailed suggestions on how to handle it, all the way from opening to weaving, are given. This article was prepared out of the extensive experience of a large mill which is an important user of spun rayon staple . .

COUNT HILAIRE DE CHARDONNET did his successful work which culminated in the practical production of continuous filament rayon in 1884. In 1889 he exhibited publicly fine specimens of his product.

Commercial use of this rayon was small at first. Its consumption amounted to only twenty million pounds in 1921. From this point its growth has far outdistanced that of its competitors until it has now reached the point where more than 250,000,000 pounds is being consumed annually.

This remarkable growth makes us realize that a new product can displace some of the old materials.

Rayon staple fiber, or spun rayon, as it is generally called, is a new fiber. It is made by cutting viscose or acetate rayon into lengths of 1-inch, 1½-inch, or longer; 1½-inch is the usual length and the one referred to throughout this article. Spun rayon is delivered to the mills in bales of approximately 500 pounds each. This is then spun into thread in much the same manner as we spin cotton fiber.

Spun rayon is made from the cellulose of spruce wood converted into a liquid, then forced through a nozzle which contains minute holes. From these holes the spun rayon comes out in the form of filaments. These filaments are cut into different lengths to make spun rayon fiber. The size of these holes may be changed at will, thus changing the size of the filaments. Different size filaments are then designated as 1½ denier, 3 denier, 4½ denier, etc., spun rayon.

Spun rayon being man-made, the processes of manufacture are under scientific control at every step. For this reason it is uniform as to quality. Practically every fiber of spun rayon is cut to exactly 1½-inch in length, while we all know that cotton classed as 1⅛-inch staple is composed of fibers varying in length from ¾-inch to 1½-inch. Staple lengths other than 1⅛-inch have correspondingly large variation in length of the individual fibers that make up the whole.

Spun rayon, like ordinary rayon, can be controlled to give dull or bright luster. This lustrous appearance is one of the main advantages of spun rayon. When mixed with cotton it adds the luster which the customer so much prefers. When used alone it gives an all-over soft and lustrous appearance desirable in so many fabrics.

The consumption of spun rayon is growing by leaps and bounds. It is not well for any manufacturer to ignore this fast-growing infant. Its consumption has already reached the point where 4,000,000 pounds are being used annually. But its possibilities are just beginning to be realized. Producers are even now hard put to it to make deliveries to the mills, and at least one of them is actively engaged in equipping to double the present manufacturing capacity of the fiber.

The uses to which spun rayon are put are many.

This practical discussion of the use and manipulation of spun rayon appropriately follows the discussion of this fiber by Michael Stephens, appearing on page 91 of the October, 1936, issue of COTTON. That article, copies of which will be furnished upon request, treated the subject primarily from its economic and merchandising phases.—The Editor.

Note some of the headlines that have been appearing in the trade papers:

"Spun Rayons May Usurp Place of Cottons".
"Fleecy Spun Rayons in College Robes".
"Challis Blouses of Spun Rayon Offered".
"Silk Linen of the New Spun Rayon Fiber".
"Spun Rayon Expected to Replace Some Imported Wool".
"Spun Rayon in Fine Count Yarn for Sheers".

Spun rayon is appearing in such fabrics as serges, twills, diagonals, flannels, prints, toweling, draperies, and zipper jacket cloth. Men's tropical suiting, light in weight, cool and serviceable, is being made from this material.

This fiber is being mixed with cotton in various amounts ranging all the way from 10 to 90 per cent of each. By means of these mixes we are able to retain the useful qualities of cotton and at the same time get the desirable qualities that are impossible to attain without the addition of the spun rayon fiber. Beautiful cross-dyeing effects are also obtained by use of these mixes.

Spun rayon fabrics are soft in texture, crush-resistant, and drape beautifully. They have the feel of woolen fabrics and give the clinging effect so much desired at the present. They give a soft, rich finish that cannot be obtained by weaving the continuous rayon filament.

Spun rayon fiber may be purchased in several different sizes. The ones most used are the 1½ denier, 3 denier, and 4½ denier, all in the 1½-inch fiber length.

The 1½ denier is fine and silk-like. It may well be compared to the fibers of Pima cotton. It is suitable for spinning in the finer yarn numbers, as from 25s up to 60s or even finer. It mixes well with Pima cotton because the fibers are of much the same diameter and length.

The 3 denier size is suitable for coarser yarn numbers. It is of about the same feel as a heavy-bodied Texas cotton, and can be mixed with that cotton to advantage. This denier is much used in yarn numbers from 10s to 25s.

The 4½ denier is coarser than cotton and is suitable for use in very low numbers as from 3s to 12s. Its use gives a coarse, harsh feel desired in some fabrics.

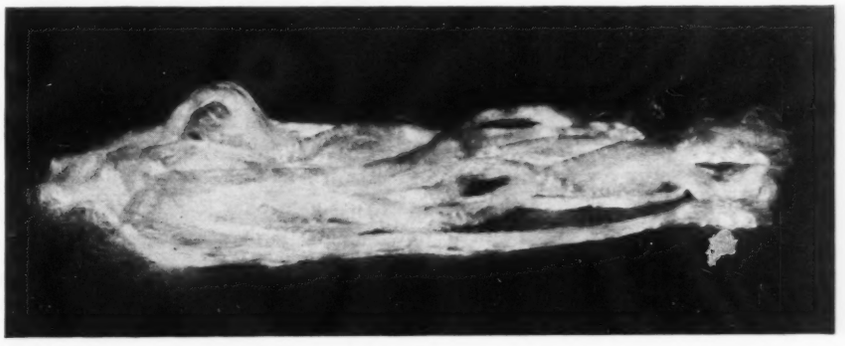
Fine or many-filament yarns, such as are made from 1½ denier spun rayon, give especially soft fabrics. These have that highly important "feel" or "hand" needed to create a delightful plain weave for use in the prints where this "hand" is so much desired. With the fabrics from this denier we get the superior draping qualities, and lusterless "Angelskin" effects.

Spun rayon fabrics have tended to run to the wool type of materials because this wool type has been easy to achieve. But this is only one of a great number of types in which it is possible to use spun rayon. Wash goods, for instance, is a class of spun rayon fabrics which are being fast developed. All spun rayon fabrics in which the warp, or filling, are of crepe-twisted yarn, are beginning to appear in the novelty fabrics field.

Men's sweat shirts in the solid colors, and women's blouses in the gay colors, are invading the market in large numbers. Challis made of spun rayon in the printed lines including dots, checks, floral and geometric designs, as well as stripes, are being made into dresses and blouses of many kinds.

One of the unexpected uses to which spun rayon is being put is that of being woven into dish towels. It also makes an excellent automobile shining rag. The lint does not pull off and remain on the dishes being dried as it does with a cotton rag. In addition to this, the glassware or china being dried takes a higher polish than in the case of a cotton dish cloth. Many thousands of pounds of spun rayon are going into this field each month, and this will doubtless increase as the public becomes better acquainted with its virtues.

The reduction in price of spun rayon has played an important part in the development of this type fabric. The price has been reduced to around 28 cents per pound. This is less than one half the price of the continuous filament rayon yarn. Further reduction in the price of the fiber will naturally follow with the increase in volume of sales. When we consider that a good staple cotton costs around 17 cents per pound, and that around 25 per cent of this is lost as waste, while the spun rayon contains practically no waste, we will realize that this fiber is well on its way to giving cotton keen competition in certain lines.



Illustrations, courtesy Whitin Machine Works
A card sliver made of cut rayon staple . . .

In manufacturing cloth from spun rayon by use of the regular cotton spinning and weaving equipment there are many points of difference to be stressed, and it is best that I follow through all the steps from the picker to the loom.

Spun rayon is delivered to the mill in bales of approximately 500 pounds each and is sold net. That is, we do not buy the bagging and ties, as well as the sand, leaf, motes, etc., that come with the purchase of a bale of cotton. The spun rayon, as delivered to the mill, contains 11 per cent moisture as against 6 per cent for the cotton.

The nature of the individual spun rayon fiber is substantially different from that of the cotton fiber. Cotton yarn gets its strength from the clinging effect of the corkscrew-like formation of the individual fibers. These "threads" fit together and add

strength by resisting the slipping action when the yarn is pulled apart in being broken. The spun rayon fibers are comparatively straight, but have vertical serrations which cause the fibers to cling together and make a strong yarn. In addition to this, the length of the individual fibers of spun rayon adds an element of strength. As a rule the coarse numbers of spun rayon yarn are stronger than the same yarn number made from cotton. The intermediate numbers are of about the same strength as cotton, and the fine numbers are not as strong as the same size cotton yarn. When spun rayon yarn is broken on the testing machine it pulls apart, or slips apart, rather than snaps in two as in the case of the cotton yarn.

Spun rayon is used in combination with cotton as well as in all-spun rayon yarns. In fact there is probably more of this fiber used in blends with cotton than is used as all-spun rayon. While most of the combination spun rayon and cotton yarn is made up of blends made at the pickers or at the drawing there is also a large amount made by twisting one end of all-spun rayon with one end of all-cotton yarn. In such cases the cotton yarn is usually finer and practically hidden by the coarser spun rayon yarn which winds around it. This gives the effect of an all-spun rayon yarn while reducing the average cost by addition of the cotton.

What is said in the following discussion covering details of manufacturing spun rayon also applies in cases of blends of spun rayon and cotton. If the blend is made up of a large percentage of cotton less care need be taken to apply the methods for spun rayon, but in general the handling of the blends can be said to follow the methods for manufacturing spun rayon as discussed in the following pages.

Opening and Picking

It is not necessary to run the spun rayon through the openers. The bale can be brought to the picker room and put down behind the hopper where it can be fed into the hopper by hand. Here we first find that spun rayon does not work well if dry. It is necessary to add moisture at the pickers, and since most mills are not equipped with humidifiers in this room, the introduction of a spray nozzle over the hopper is probably the best method of wetting the fiber.

Spun rayon is not matted in layers in the bale, as in the case of cotton, and it does not require any large amount of breaking apart by hand as it is thrown into the hopper.

The fiber should be treated gently as it is easily broken in handling. Any breakage of the fiber will of course result in the increase in fly, and loss of strength, at succeeding processes. The beats per inch should be cut to one-half to two-thirds the number used for 1 3/16-inch cotton. Any type beater will do, but the Buckley type is preferred since it is not as hard on the fiber as the other types. A plate may be used under the beater to prevent the fibers from falling through, or the picker may be left as it is used for cotton. In this case the fiber taken from under the picker as it falls through is thrown back into the hopper. The picker is merely used to get the spun rayon in shape for the card, and a cleaning action is not necessary. The same beater settings are used as in the case of cotton.

If trouble develops because of split laps, it is well to use the old method of putting up about six ends of slubber roving at the picker and allow this to run through and onto the lap. The weight should be lightened to prevent the lap from packing too tight. If weighted too heavily there may be trouble in drawing the pin. While this should not give trouble with lessened weight, such trouble can be gotten around by the use of a paper tube. Slip a paper tube over the pin and allow it to go to the card from where it can be returned to the picker after the lap is run off.

The finished lap should have about the same weight tolerance as in the case of cotton laps. Spun rayon does not give any more trouble as concerns the holding of the lap weight correct than in the case of cotton.

Protect the picker lap by wrapping it in paper and keeping it thus protected until it is pieced up at the card. The lap has a tendency to fall apart, and this paper covering prevents this as well as holds the moisture in the lap until it is in place at the card.

The spun rayon lap can be made on either one-process or two- or three-process picker as in the case of cotton.

Carding

The card room moisture should be controlled. A relative humidity of 60 per cent to 65 per cent is recommended.

Careful adjusting, effective setting and grinding, are necessary in keeping quality up and waste losses low.

From the amount of fly that shows up in subsequent processes, we are certain that some of the fibers are broken at the card. This is considered unavoidable but must be kept to a minimum. The individual spun rayon fiber is tender and easy to break. An analysis of the fiber can be made before and after the carding process to guide in determining what damage is being done here. A stapling machine which sorts the fibers into different lengths is used for this test.

To prevent licker-in waste the knives may be removed and replaced by a curved plate of tin cut to fit the space. The revolving flats are slowed down; a speed of about 1 inch per minute is recommended. The plates should be set close so that no flat strips will be made. If it is found that some strips are made here even after the plate is set as close as possible, this waste should be taken back and run over.

Card clothing is the same as that used for cotton —110s or 120s on the cylinder and flats, and 120s or 130s on the doffer. The method of grinding is the same as for cotton. There is no need of a change in card clothing when using different denier spun rayon fiber.

Stripping need not be done more than one-fourth to one-half as often as in the case of cotton. Stripping once in each six or eight hours is satisfactory.

Carding may be done at the rate of six to ten pounds per hour depending on the numbers to be spun. Cylinder and doffer speeds are the same as for cotton—the licker-in speed is slower.

A short draft—about 80 or 90—is preferable.

The setting of the doffer comb should be as in the case of cotton—as close as possible. The spun rayon web will break down more easily than in the case of cotton, but careful handling will overcome any trouble that develops. It may be necessary to add a little draft here. It is highly essential to keep enough moisture in the material to kill the static that is inclined to give so much trouble.

There is a difference of opinion as to the proper card settings but they will not vary widely from the following: Feed plate to licker-in, 12; licker-in to cylinder, 7; cylinder to flats, 10; and cylinder to doffer, 5/1000.

Spun rayon fiber does not have to be cleaned of leaf and neps since these are practically non-existent. The carding is not so much a problem of cleaning as it is a problem of processing and preparing for the steps that are to follow.

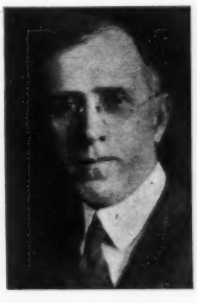
Waste losses at the card are practically *nil* since such waste as is made is taken back to the picker and thrown into the hopper to go through again.

(The second and concluding installment of this practical article on running cut rayon staple, to appear in an early issue, will continue the handling of this material through the mill, from the fly frames through the looms.—The Editor.)

Cotton-Textile Commission to Visit Japan

Dr. Murchison
Blackstone Photo

Mr. Callaway



Mr. Comer

Mr. Bailey

Mr. Kent

Mr. Philip

ROBERT W. PHILIP, Editor of COTTON and a director of the W. R. C. Smith Publishing Company, has been selected to go to Japan as secretary of the commission of textile manufacturers who will meet in that country in January with Japanese cotton-textile interests for direct discussion as a basis for solution of the Japanese cotton imports problem.

The personnel of the commission, under the leadership of Dr. Claudius T. Murchison, president of The Cotton-Textile Institute, includes: Cason J. Callaway, chairman of Callaway Mills, LaGrange, Ga.; Donald Comer, president of the Avondale Mills in Alabama and president of the American Cotton Manufacturers Association, southern cotton mill organization; Harry L. Bailey, president of Wellington Sears Company, New York; and Hervey Kent, treasurer of the Exeter Mfg. Company, Exeter, N. H.

Approved unofficially by both the American and Japanese governmenfs, the mission hopes to achieve a mutual understanding by the United States and Japanese industries of their respective problems which can ultimately be translated into a practicable, voluntary agreement by the Japanese to establish their cotton goods shipments to this country on reasonable bases of volume, price and distribution. It is an effort probably unprecedented in international trade relations.

Discussions between the two industries were first proposed by Dr. Murchison last spring following the collapse of diplomatic negotiations for a "gentlemen's agreement" initiated by the state department. The failure to obtain an agreement was attributed in some quarters to misunderstanding of the problem by the Japanese industry, and the result was the presidential order, effective June 20, increasing by an average of 42 per cent the customs duties on those cotton fabrics comprising the bulk of Japanese shipments to the United States.

The growing conviction, in the light of experience since the tariff increase, that any protection available under existing law would be ineffective against the wide disparity between Japanese and United States labor and other production costs, as well as realization both here and in Japan that the only alternative to voluntary action by the Japanese may be definitely discriminatory legislation by Congress, has stimulated interest in the proposed mission.

Mr. Callaway, accompanied by Mrs. Callaway and their two sons, Cason, Jr., and Howard, together with Mr. and Mrs. Comer and their daughter, Martine, will sail from San Francisco on December 18, spending a week in Honolulu, where on December 29 they will join the remainder of the party, who will sail from San Francisco on December 24, on the NYK steamer, the *Chichibu Maru*.

How Loom Fixers are Trained at the Bibb Plant in Columbus

Article 2—Training the Advanced Students

By C. E. Dorn, Overseer Weaving
Bibb Manufacturing Co., Columbus, Ga.

THIS continues and concludes the discussion by Mr. Dorn on the subject of training loom fixers. The first installment, which appeared in the November issue, dealt with the selection of students and their preliminary training, and the present installment takes the reader through the training given the advanced students. Copies of the previous installment are available on request . . . . . .

Advanced Training

AS WE have covered in the November installment the preparatory steps necessary before the individual is placed on a fixer's job, we will now give an outline of advanced training after he has begun the actual duties of a fixer.

The advanced steps in training a loom fixer constitute the most important phase of the work, for it is then that he is directly affecting the operating conditions of his concern. This stage of training is very expensive; and, for this reason, everything possible should be done to accelerate the pace of training. A fixer's progress after placement on a job is very essential to the maintenance of quality and quantity production and a reasonable cost figure.

With reference to the number of classes, we might say that only two classes are held—one for each shift—which are combination classes; that is, both the preparatory and advanced training are taught to the class members. The class members are grouped according to their ability, experience, and the progress made. It would, of course, be much better if a class could be arranged for each part of the loom fixing training. However, we endeavor to do most of the preparatory training, such as passing the "Tests in Practical Loom Fixing" on Saturday morning. In other words, the trainees are encouraged to come into the mill at any time while not working to study the preparatory steps of training. In this way the learners are benefited more from the discussions of advanced training, as we strive to devote a large portion of the time for each class to the advanced steps.

The following discussion covers the second phase of the training.

Quality of Product is Stressed

Quality of the product should be an item of utmost importance and a subject that should always be upon every fixer's mind. It is the mill that makes first quality goods that gets the business, and the mill that gets the business is the mill that always runs full time.

A thorough study is made of all the causes of various defects with the view to correcting such troubles. The fixer might be familiar with all the causes of bad work and still not be able to locate the direct reason for the defect. Each fixer is pro-

Instructor J. H. Pitts explaining to three loom fixer students the setting and adjustment of the stroke of the sliding bar warp stop motion

"Bolts of cloth are carried to the class room and shown to the members in an effort to teach them more about the defects encountered . . . and the possible means of eliminating them are discussed" . . . . . .

vided with copies of the various causes of cloth defects while he is taking his preparatory training. It is during his advanced training that he is taught how to locate the trouble and remedy it. The learner can generally fix the loom after the trouble is located; however, it requires practice, skill, experience, and patience to find the cause.

Reports of cloth room seconds and shorts are carried to the class meetings and discussed with the view of improving the quality of cloth. These reports contain loom numbers, style, yards of seconds and shorts, type of defects. These reports show the seconds and shorts made on each loom number and on each fixer's job, as well as the amount of seconds and shorts produced on the different sections from the beginning of each fiscal year. It is not infrequent that improvements and ideas are suggested which, when applied, prove very beneficial in reducing the amount of bad cloth produced.

Before class time the instructor selects looms that have been producing an excessive amount of defective cloth. These looms are then worked on by the class members and afterwards they are checked over by the instructor. The instructor can determine in this way if the fixers are applying the knowledge gained in their preparatory training and if they are following the standard settings, methods and proper instructions. It is then very easy to find out what class of work the various fixers are doing and also if they know better or are deliberately neglecting their duties.

Bolts of cloth are carried to the class rooms and are shown to the members in an effort to teach them more about the defects encountered which are objectionable to our customers and the possible means of eliminating them are discussed. Defects from other departments are discussed in the classes, and reports of such defects are carried to the other department heads with the sole idea of improving our product.

The fixers are encouraged to co-operate with every employee on their sections. They are taught to observe the work of the weavers and battery fillers to see that they are using the proper methods of starting and stopping the looms; making good start-ups, etc., and they must lend their assistance in every possible way to increase the production of their sections and reduce the amount of defective work. They are instructed to insist that the weavers flag all looms which give trouble so that the cause may be eliminated immediately. The battery fillers are instructed how to fill the batteries properly and to run their jobs to best advantage.

Letters concerning any complaints or criticisms from customers are read during the class meetings and steps which would eliminate any undesirable situation are discussed.

We strive to impress upon the minds of the fixers the importance of the little things that go to make up the difference between good production and low production and a first-class, up-to-date loom fixer and an ordinary loom fixer.

The fixer might be spending too much time on jobs that would not have to be done if the work had been done right in the first place. He might not be spending enough time tightening up the loom properly while the warp is out or when starting up new warps. A thorough job of such work will save fixers' flags later on which will, of course, automatically increase the production.

We endeavor to teach every fixer to fix a loom when he goes to it, regardless of what is necessary to put the loom in first-class mechanical shape. There is no excuse to keep going back to the same loom to work on it when it should have been fixed at one stoppage. This is very important when installing a new shuttle, for the loom should certainly be in good condition before a new shuttle is put in.

The fixers are taught to look over all their flags and take care of the smallest jobs first. This enables them to start up more looms. Then the larger jobs are taken care of later. All preparation for repairing a loom should be made before the loom is torn down; that is, all supplies and equipment necessary to take care of the job should be available so that no time is lost in making the adjustments to the loom.

Too much production might be lost on account of low speed looms, tension too tight on warps, shuttles cutting, etc.; or the loom might be improperly set for a certain style of goods. All such items are dis-

cussed in fixers' meetings in order to improve the production. It should always be borne in mind, however, that quality should come first.

Waste and Supplies

The subject of waste and supplies receives its share of attention in the training classes. It is so easy for a fixer to drift into careless and expensive habits in the use of supplies and materials for the upkeep of his section. Weekly and monthly supply reports are made for each section. These reports include the number used and prices of the various items of expense. The difference of upkeep is noted between the different sections with the view of getting the cost of materials down on the sections that are running out of line.

In order to have an idea of what each fixer is doing to reduce his supply cost, bins have been provided in the supply room to receive all the old parts as they are taken from the looms. The parts are arranged according to the different fixers' jobs and are allowed to accumulate for a week. They are then

LOOM INSPECTION REPORT

Loom No._____ Date_____

1 PICKERS_____
2 THREAD CUTTERS_____
3 TEMPLES_____
4 HARNESS_____
5 SHUTTLES
6 FILLING FEELER_____
7 BATTERY & TRANSFER_____
8 PICK MOTION & STROKE_____
9 ROCKER SHAFT_____
10 CRANK SHAFT_____
11 CAM SHAFT_____
12 PARALLEL BLOCKS_____
13 SWORDS_____
14 FROGS FOR RUBBER_____
15 PROTECTOR RODS & FINGERS_____
16 SHUTTLE BINDERS_____
17 STOP MOTION_____
18 TAKE UP_____
19 SHIPPER HANDLE BUMPERS_____
20 HARNESS SHEAVES_____
21 FRICTION_____
22 WARP TENSION_____
23 CRANK ARMS_____
24 SWIVELS_____
25 PICK CLOCKS_____
26 FILLING CAM & FORK_____
27 BRAKE & BRAKE LEVERS_____
28 LUGS & HANGERS_____
29 _____
30 _____
31 _____
32 _____
33 _____
34 _____

The loom inspection report

removed by the overseer and shift foremen and a careful inspection is made to determine the reason why the parts are being replaced on the looms. The fixers know, too, that all the old parts carried to the supply room will be checked and inspected. No new parts are to be issued by the supply clerk until the old piece is received to be placed in the correct bin for that section.

The results of this inspection of old supplies are discussed in class meetings. It may be found that certain fixers are taking off parts before they are worn out. A good loom fixer should know how to properly adjust and "tune up" his loom without putting in a lot of new parts just because some of them are slightly worn and yet maintain the quality of cloth and production. New parts should be installed properly, and in every case a loom fixer should be trained to determine the causes of breakage or worn-out parts. The loom should be turned over by hand in some cases in order to prevent further breakage and waste of money. Some of the breakage may be due to defective or improperly designed castings. The oiling schedule should be checked to determine if any parts are worn out due to lack of oil. The fixers may be trying to run their looms with too much or too little power. It may be noted that the shop is turning out poor work or the welder is a little careless about his job. Samples of such pieces are brought to the class meetings.

Fixers should be taught to be economical in the use of supplies. Visits are made to the junk piles periodically to see if any good supplies have been discarded. Bolts, nuts, and washers can always be found around sweepers' stands, and these should be collected and used. Temple knives and thread cutters can be sharpened and used longer before they are discarded.

A loom inspection report is used to a good advantage for instruction and check-up purposes. A copy of this report is shown in the accompanying illustration.

A report is placed on two looms each day on every fixer's job. The items listed are to be checked and the loom put in good mechanical condition before the fixer okays the sheet to signify that he has completed the work on that particular loom. After all of the looms have been inspected on a job, then the procedure is repeated. This insures a good mechanical upkeep of the looms in the whole room.

After the two looms are worked on, they are checked the following day by the shift foremen or head loom fixers. In this way we can determine if standard settings, operations, and methods are being employed. If any items listed on the report are found to be improperly set, the fixer is brought back to the loom, properly instructed, and then required to do the job right before leaving the loom. This system enables us to follow up the progress of the fixers and determine what results are being obtained on our fixers' training program.

Tests and experiments on the various model looms are explained and discussed in the group meetings. Where any materials, after a thorough trial, have been adopted as standard equipment, instructions are issued for the proper methods of setting and installing.

Suggestions and ideas from members of the classes for improvement of conditions are always welcomed and encouraged. Progressive ideas that may be applied in a practical manner constitute the basis of all progress. Many items of expense have been reduced by the application of a suggestion furnished by the class. The "one best way" for doing

a job should always be found.

Discussions are held on articles of interest that are found in trade publications. Reports from class members on visits to other mills are sometimes an aid in improving operating conditions.

Fixers should be taught the value of speed in doing their work. The slow-but-sure method will soon be a thing of the past. In fact, every bit of our experience goes to prove that the slow worker is seldom a sure worker. Fixers should learn to do good work at a reasonable rate of speed.

An effort is made to keep our classes posted on developments in industry, quality demanded by the customers, wastes that can be prevented, equipment maintenance, general appearance, village conditions, safety, methods of reducing costs, losses through spoiled work, and other general information of interest.

Training is the one direct and sure road to advancement. An individual should bear in mind that the greatest opportunity that may come will never be greater than one's preparation.

It has been said that "Anyone who stops learning is old, whether this happens at twenty or eighty years of age". Anyone who keeps on learning not only remains young but becomes constantly more valuable, regardless of physical capacity.

Every fixer, as OLD-TIMER has so aptly said in COTTON, should learn to run his section instead of letting it run him, and get to the job before the job gets to him. In this way he would learn to use his head more and his hands less.

Loom fixers should be taught to realize that old standards must pass and new and higher records must be substituted for the old and that nothing but the best will be acceptable. We should never be content to do things today the same way as we did yesterday. This is an age of progress.

"Quality Club" at the Pickett Cotton Mills, Inc. Includes Executives, Supervisors and Operatives

This photograph was made at one of the recent regular meetings of the Quality Club of the Pickett Cotton Mills, Inc. W. A. Hunt, the superintendent, is shown to the right in the picture of the young lady at the left; and R. H. Walker, president, is shown to the left of the young lady in the center . . . . . .

IN THE INTEREST of production, efficiency, and quality within the plant, the Pickett Cotton Mills, Inc., High Point, N. C., has formed an organization known as the Quality Club. Membership first consisted of the superintendent and overseers, who found that the benefits of the club were of such a nature that other employees would also profit by attendance, so the membership was enlarged to include section men in the plant. Later it was found that operatives were interested and now the club consists of executives, overseers, section men, and operatives. At the present there are 42 members.

The Quality Club meetings are held monthly in a private dining room at a downtown hotel where the company treats the members to a dinner and entertainment program. After this the members have a round-table discussion of practical mill problems dealing with methods of producing better work in the mill. Everyone is given the opportunity to express himself and to offer some suggestion concerning the manner in which he thinks better work may be turned out in his department.

As an example of this, at a recent regular meeting the causes for badly wound yarn were discussed, followed by the consideration of some causes of weak yarn. Among the causes for badly wound yarn given were: neglecting to change wind or speed of traverse in changing the frame to another number; bobbins working loose or waste inside bobbins forcing them to jump on the spindle; bobbins on spindle not in the center of the ring, causing it to rub on one side; slack bands or tapes; inside of bobbins worn; bobbins set too high or too low; and too short a stroke.

Some of the causes of weak yarn as brought out by members of the Quality Club were: improper twist; overdraft; bad top rolls; rolls improperly set for staple of cotton being run; rolls improperly oiled; spindles out of plumb; lifter rods out of plumb or loose; lifter rod bearings worn causing ring rail to vibrate; travelers run too long without being changed; bad roving from card room; bad piecing-up by doffers; irregular oiling of spindles; whorls varying in diameter; bands varying in diameter; and improper length of traverse.

Other important mill subjects are discussed at each meeting. Afterwards, an executive of the mill makes a few comments. Officers of the club are elected periodically.

(Editor's Note: There exists a difference of opinion as to the merit of holding meetings of the operating force with regularity. Some feel that regularity is important, others think that frequent meetings without definite schedule are better. No one, however, questions the value that comes from meetings sufficiently often. We shall be glad to receive reports of other such organizations.)

The 1936 Revenue Act: "A Cash Levy on the Workingman's Job Insurance"

That is how the new tax bill appears to the mill man who has written this brief, clear article. . . . .

By James D. Hammett
Assistant Treasurer, Chiquola Mfg. Co.,
Honea Path, South Carolina

THE TEXTILE INDUSTRY is now beginning to appraise the financial results of its operations for the past year. This appraisal is leading the industry into a deeper study of the significance of the Revenue Act of 1936. This act presents something new in the way of taxes by the imposition of what the government has ingeniously termed "a surtax on undistributed profits". This surtax might have been more aptly called "a cash levy on the workingman's job insurance".

Just what is this surtax on undistributed profits and how will it affect the workingman in the future?

This surtax is a levy on that part of the earnings of a corporation that remain after income taxes and dividends have been paid. For the sake of example, assume that a corporation, capitalized at $1,000,000, is fortunate enough to earn 10 per cent on its investment, or $100,000. On such an income it would pay an income tax of $13,840. There is no complaint about this tax for nearly all of us concede that income taxes must be raised if the Federal Budget is going to be balanced. But the burden does not stop at this. After paying the income tax out of its earnings the corporation will have $86,160 remaining for dividend disbursements and surplus. It would be conservative for the corporation to retain $40,000 of this amount for surplus and pay out the balance in dividends. The amount retained for surplus would be considered undistributed profits and the new surtax would be levied on the $40,000, which surtax would amount to $5,784.40. The income tax and the surtax combined would amount to $19,624.40, or slightly over 19½ per cent of the corporation's total income.

Suppose, however, that the surplus of the corporation has been seriously depleted during the depression, as have the surpluses of most textile corporations. In such a case it would be the part of wisdom for the corporation to retain all of its earnings in an effort to rebuild its surplus account to a comfortable level. In this case it would have $86,160 in undistributed profits on which the surtax would be levied. In this case the surtax would amount to $17,662.80. The surtax and the income tax combined, in this case, would amount to $31,502.80, or 31½ per cent of the total income of the corporation.

In the foregoing illustrations we can readily see that the corporations with a comfortable surplus account can easily avoid payment of such a large surtax while those corporations whose surpluses have been depleted will be severely penalized should they attempt to replenish their surplus account.

How the Workingman Is Affected

Well, where does the workingman fit into the picture? What does he care about the surplus of the company as long as he receives his wages?

The workingman, just as much as the owners of a corporation, must depend upon the surplus of the business during hard times. When a corporation begins to lose money it is from the surplus that has been accumulated during prosperous times that the workingman obtains his wages. Should there be no surplus, jobs and wages would soon cease when hard times come. Had it not been for the surpluses accumulated by our American industries during the prosperous 1920s, the unemployment problem during the past few years, serious though it was, would have been a hundredfold more acute.

Unemployment insurance can never take the place of a comfortable surplus as security to the workingman. Unemployment insurance depends upon the earnings of industry and the wages paid by industry for its premium. The Federal Government does not and cannot contribute to the fund for Government has no income other than through taxes. And taxes depend upon profits and business solvency.

A surplus has often been distorted by demagogues into meaning something alien to the welfare of the laborer. It has been used as a weapon for the selfish politician in strangling votes from the millions of honest and innocent wage earners of this country. But, in truth, a surplus is the employer's humble method of fortifying both himself and his employee against the ravages of depression. It is by far the best job insurance that has yet been underwritten. Any effort to hinder the accumulation of a reasonable surplus will act as severe handicap to the workingman during periods of depressions in the future.

The best job that could be done by the next Congress would be the outright repeal of the surtax on undistributed profits. By such an action they would be making a material contribution to the future welfare of American industry.

WARP SIZING, by Paul Seydel (Article 12)

The author gives in this, his final discussion, some further comments on the slasher room and its equipment; rolls, creels, beams, tensions, etc.

IN THIS installment, Mr. Seydel continues his discussion of slasher room equipment, its care and operation, and covers in a practical way the matters of strainers, pumps, weighing equipment, beam storage, creels, rolls, tensions, selvage devices, split rods and records. The November installment (Part 11) covered other equipment.

This article concludes the series of 12 by this author, and the current discussion of equipment rounds out his former installments covering materials into a comprehensive treatment of the whole subject of Warp Sizing . . . . . .

The Slasher Room and Its Equipment (Continued)

Pumps: It is preferable to have low speed rotary type pump rather than a high speed centrifugal type, since the latter beats the size too much, tending to break it down and to cause foaming.

Strainers: Every size system should be equipped with a suitable strainer at the size box to insure freedom from lumps of congealed size, strings, trash, etc., which get into the size mix with the different ingredients. This strainer should be easily accessible so that it can be removed and cleaned at intervals. It should also be of sufficient size to allow freedom from clogging and overflowing. The lumps and trash should be caught before they get into the size box, because they are very difficult to remove from the size box due to the presence of the copper rolls, immersion rolls, etc. A very simple device can be made by inserting into a funnel a strainer made in the shape of a frying pan, the bottom consisting of fine mesh copper wire. This type of strainer can be easily removed and cleaned with a hose, or by immersing in a bucket of water which can be kept handy.

It is surprising to those who have never used strainers to see the quantity of foreign matter collected in them. Strings which would get through and fasten themselves on a sheet of yarn and cause tangled breakouts on the loom are eliminated; also small splinters of wood which might stick to the sheet of yarn and cut some threads. Lumps of hard and congealed size, which may or may not have become stained, are also taken out of the system.

Another effective type of strainer used by some mills is a sack made by sewing together the sides of a strip of cloth that has been doubled. This cloth is usually woven of coarse yarn, about 20 or 30 mesh weave. The resulting sack should be about 4 or 5 inches in diameter and about 1 foot long. It is tied with a string over the end of the feed pipe at the slasher box. About 6 or 8 inches of the sack should be left hanging, and it is preferable to place it in a funnel which leads to the size box. When necessary the sack is removed, thrown away, and a fresh one put on.

Weighing Equipment: The size maker should be furnished with a set of good scales, preferably a small platform scale weighing up to 500 or 1,000 pounds, with a platform sufficiently large to hold all the containers necessary for a batch of starch. A second smaller scale should be used to weigh small quantities more accurately. These scales should be checked by the overseer at frequent and regular intervals to see that they are weighing correctly.

It is desirable that the containers for the starch be of such size as to hold one complete batch so that the total can be weighed at one weighing. This is in order to avoid errors on the part of the size maker. Suitable containers could be two or three old roving cans or five or six galvanized cans with handles. I have even seen coal scuttles used to advantage. In the selection of these containers, bear in mind that they should not be too big for one man to handle with ease without spilling, or so small that the required number cannot get on the scale all at one time

For measuring the water, a stick with a nail driven through it may be used, the nail being placed at the height where the water is desired, or a stick in the form of a *T* cut to such length that when the crossed part of the *T* spans the opening of the kettle, the end of the vertical part of the *T* just touches the top of the water, when the correct quantity has been added. The agitator in the cooking kettle should be stopped while the water is being measured, otherwise, the volume of water cannot be measured correctly.

We cannot emphasize too strongly the fact that if science has progressed and conquered many problems, it is due to the accuracy and careful pains taken by scientists. Such care is absolutely necessary to obtain uniform results, therefore, each superintendent and overseer should be urged to instill into the mind of his size maker the importance of

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The first article in this series, page 43, November, 1935, COTTON, gave a non-technical analysis of the composition of raw cotton; the second, page 44, December, 1935, issue, covered flours and starches; the third, page 55, January, 1936, issue, covered gums and glues; the fourth, page 63, March, 1936, issue, covered fats, lubricants and softeners; the fifth, page 74, April, 1936, issue, covered deliquescents and preservatives; the sixth covering weighting materials appeared on page 68, May, 1936; the seventh, page 60, June, 1936, covered water; the eighth, page 59, July, 1936, covered the ingredients necessary to make a well sized warp; the ninth, page 51, August, 1936, discussed defects in the warp and their detection; the tenth, page 69, September, 1936, discussed the subject of analyzing sizing materials; and the eleventh, page 75, November, 1936, began the discussion of slasher room equipment which is concluded in the accompanying final installment. Reprints of these previous articles are available to those who do not have copies, upon request.—THE EDITORS.

accurately weighing and measuring each ingredient used in the size mix. In the case of starch and compound, this can be done only by weighing. Measuring such materials by volume leads to errors since the same volume of a material does not always have the same weight, due to the physical state of the products.

Beam Storage: In order that the beams may be kept in good condition so that the heads will stay at perfect right angles with the barrel, it is necessary to take precautions in their handling and storage. For heavy beams, racks in tiers are very effective. For lighter beams a rack can be used made so that the beam is stored vertically, one spindle resting on the floor, the other spindle held in place by a clamp fastened to the rack. Another method is to use two parallel tracks about 1 foot high and 3 inches apart. The spindle fits between the tracks and the beam head rests on them. The tracks are made of angle iron to permit the beams to slide easily on them. This same storage can be used for loom beams and keeps them from becoming dirty with resultant damage to the warp.

For the storage of section beams, a device rather inexpensive but effective is a long table about the height of a dolly truck, and of a width suitable to the section beam. The section beams are placed on this table at one end with a hoist or truck, and at the other end, which terminates just in front of the creel, a hoist lifts them into place.

All beams should be checked at intervals to make sure that the heads are at right angles to the barrel, otherwise the "wabble" in the head will cause bad selvages. The head should be painted often enough to prevent rusty selvages, particularly is this essential where a taped selvage is being run, using larger yarn in the selvage than in the body of the warp. This yarn necessarily cannot be dried as much as the body of the warp. Unless the operator runs the risk of baking the warp he must leave the selvage rather damp.

Creels: The creels on the slasher should be kept in perfect alignment so as to keep an even tension on each beam as it feeds into the body of the warp. The creels should be braced with suitable cross-members to make them sufficiently rigid. In order to insure against the journals of the creels being so tight that they put an excessive amount of friction on the beam, it is a good idea to use between the beam head and the journals a large metal washer about 2½ to 3 inches in diameter, ⅛ to 3/16-inch thick, with a hole somewhat larger than the diameter of the beam head spindle. This will turn with the beam as the yarn unwinds provided the journal has not been tightened too much. Should the journal be too tight the washer will remain stationary, which can be easily seen by the overseer or slasher man as he passes.

Some mills have adopted a new type creel designed to control automatically the tension on the section beams, thereby equalizing the strain on the ends coming from the different beams. This invention by Mr. William W. Arnold consists of a frame support made of angle iron carrying a tension device. The frame runs along the creels just outside each end of the section beam bearings. It is parallel to and about 5 feet above the floor. At intervals on this frame, slightly in front of each section beam, are bearings holding the individual tension device for each beam.

These bearings holding each end of the shaft of the tension device act as fulcrum points, for at each end of the shaft and fastened to it at right angles, is an arm extending in opposite direction, about 12 inches from the center. One end of this arm is fastened to the friction rope controlling the friction of the beam. The other end of this arm carries a floating rod about ¾-inch in diameter, which is free to turn. This floating rod is supported by the sheet of yarn passing under it. The yarn from each section beam passes over a ball-bearing guide roller, which is free to revolve around the shaft of the tension device, then underneath the floating roller and on to the slasher.

The weight of the floating roller tends to pull the sheet of yarn downward. As it moves down, due to the see-saw action of the fulcrum, the end carrying the friction rod moves upward, tightening the friction on the beam head. When more friction is applied, the tension on the sheet of yarn becomes greater, which causes it to raise the floating roller, which in turn lowers the end carrying the friction rod and relieves the tension. This action soon finds an equilibrium, and a uniform tension is maintained, the degree of which is governed by the weight of the floating roller.

Thus, the sheets of yarn from each of the section beams are delivered to the size box under the same tension, causing all of the section beams to run out at the same time, greatly reducing the amount of waste made on the end of each set. This waste is reduced from 40 to 60 per cent, as compared with the old method of creeling. The uniform tension of the yarn wound onto the loom beams greatly reduces warp breakage on the looms.

The proper equipment of the slasher room is as important as the proper selection of sizing materials. Poor sizing equipment may nullify the value of the most scientifically compounded size, and perfect equipment with the use of a scientific sizing formula will surprisingly increase production and improve it beyond belief.

Rolls: It is very important to keep all the rolls on the slasher in good condition. Copper rolls should be tested from time to time to see that their surface is smooth and perfectly straight from one end to the other with the diameter the same throughout the length of the roll. Otherwise, the yarn passing between the copper roll and the squeeze roll will not be evenly dressed across the entire width. If copper rolls become scored or warped they should be turned down and if there is not sufficient metal for this purpose, they should be sent back to the factory or discarded.

Care should be taken when renewing the copper tubing of the copper rolls, that the heads are not

turned in so tightly that the tubing is expanded, thereby causing a greater diameter at each end than in the middle of the roll.

The feed roll feeding the yarn into the slasher box should be smooth and should not be allowed to cake up with hard size or strings.

The immersion and copper roll heads and seams should be kept tight at all times so the size cannot enter inside. Neglect of this precaution may cause staining. There are several types of immersion rolls on the market. One consists of the conventional solid type roll of 4 or 5 inches diameter, which for most purposes is very satisfactory. Another consists of three small rolls parallel to each other but spaced at the end in each corner of an equilateral triangle. It is claimed by the inventors that the bending of the yarn around these rolls has a tendency to knead the size into it. Also, one side of the yarn passing in contact with the first roll is open to the size on the second roll, and for this reason gets a better coating. These rolls work with entire satisfaction and the theory seems sound.

Another device which has within recent years come on the market, consists of a squirrel-cage type apparatus. The roll is made up of a series of horizontal bars about 1-inch apart fastened into two headers that carry the spindle of the roll. This gives a hollow roll so that the size comes in contact with the yarn on both surfaces. The inventor claims that particularly on heavy sets, at least 1 per cent more size can be obtained than by the use of the conventional solid roll. The results seem to be satisfactory. This type of roll also prevents lumps of size being trapped between the roll and yarn, and being mashed flat on the yarn.

Squeeze Rolls: The squeeze rolls are probably the most important of all. If not in good condition they may play havoc with the dressing of the yarn. For heavy sets containing a large number of ends it is preferable to have a heavy squeeze roll. It not only dresses the yarn better but has a tendency to force the size into the yarn. The bearing of the squeeze roll should be kept in good shape to keep the roll slightly forward of the high point of the copper roll. In this way no layer of size flows on the yarn just in front of the nip of the two rolls. If this size does flow out at that point, the same action occurs as when coffee is cooled by putting it into a saucer—the size becomes chilled and is injured. When the roll is slightly in front of the high point of the copper roll, the size is squeezed out through the yarn and into the size box.

When the squeeze rolls become rusty and pitted, as they do from time to time, they should be tooled down in a lathe and prepared again for use in the following manner:

Paint with white lead and cover with 4 yards of a light weight duck cloth. This cloth should be painted with white lead as it is wound onto the roll except the last 12 inches, which is left unpainted and is used as a lap for securing the blanket tightly to the roll.

The roll should be set aside until the paint has thoroughly dried, at which time it can be put in the slasher and 6 yards of 16-ounce wool blanket wound on the roll.

It is always good practice to break in a blanket on the front roll and then transfer it to the finishing roll. In this way the wool becomes better felted, thereby giving a better finish to the yarn. Should this not be convenient, a few yards of the old blanket should be wound on top of the new blanket and run for a while until the new blanket becomes set.

If the weight of the front and finishing rolls is the same, then it is best to move the front roll to the finishing roll position after the new blanket has been broken in on the front roll.

After a blanket has become set, it is better practice to leave it on the roll until it is worn out. It must be trimmed from time to time as required. When the slasher is to be stopped for any considerable length of time, the blanket should be washed thoroughly on the roll with water, so as to dilute the size to such a point that when it congeals it will not set hard enough to take the cushion out of the roll. A blanket should last 200 hours with the slasher running at normal speed.

Some mills have found it to advantage to use burlap in the place of wool blankets on the first squeeze roll. For this purpose use 3 or 4 yards of burlap as a blanket, then wind on about 3 yards of sheeting over the burlap.

It is good practice to keep one or two spare squeeze rolls on hand with the cloth leaded on ready to be put into the slasher upon short notice.

Front squeeze rolls should weigh at least 350 pounds, and finishing rolls at least 450 pounds. For very heavy sets with a large number of ends, the same squeezing pressure will not be exerted on each end as with a small number of ends, therefore, for heavy sets squeeze rolls of at least 500 pounds should be used. Starting with a 500-pound roll there is enough metal to turn the roll down several times. When it becomes too light for the finishing roll, it can be used for the front roll.

It is good practice to weight the squeeze rolls provided it is done uniformly on both ends. This can be done by using a lever with a weight suspended from one end. The other end is fastened to the frame of the box, and a bearing between exerts pressure on each spindle of the squeeze roll. This gives a method of varying the pressure of the squeeze roll to take care of different kinds of sets.

For uniform results, particularly uniform weight, the finishing roll on each slasher should be of the same weight provided the same type of sets are being run.

Tension: The tension on the warp is a most important factor for good running work. If the slasher is in good condition, stretch regain of not over 1 and 1½ per cent should be sufficient, and in cases where the stretch exceeds this, tests should be made to reduce it. The point where most harm is done from too much tension is between the finishing roll and the cylinder. The yarn at this point is wet and is easily stretched. It then comes in contact with

the hot cylinder and is dried before it has time to go back to its original length. This causes a permanent injury, reducing the elasticity of the yarn.

Only enough cloth should be wound on the delivery roll to keep the yarn from slipping on the cylinder and to keep it from breaking out at the lease rods.

If the cylinder bearings are in good order and well oiled, and if the size mix has been properly made, as pointed out, this tension should not cause a stretch of over 1 and 1½ per cent. In many instances it can be reduced still further.

Brake control devices on section beams permit lighter friction and reduce some of the stretch at this point. They are set so as to brake the momentum of the section beams when the slasher is stopped, thus preventing kinks from slack tension.

Selvage Devices: In the device for running selvage threads outside the section beams, proper tension can be maintained if the threads are run from spools on a creel fastened to the slasher hood. On these spools light friction can be exerted. The threads pass from the spool down under a smooth rod, then under the finishing roll without going through the size. When the selvage is run in the body of the warp with the section beams, the selvage should be separated and guided to the edge of the cylinder where it will be assured of sufficient drying surface to dry thoroughly.

Another way of running selvage threads coarser than the body of the warp is to run them over rolls attached to the frame of the slasher between the two cylinders, and high enough to cause the yarn to remain in contact with the cylinder over a greater portion of the circumference. In extreme cases the selvage yarn can be made to turn twice over one of the drying cylinders.

Split Rods: It is desirable on very heavy sets to have a split rod dividing the yarn in two portions just before it goes to the cylinder. Where such a device is used it is desirable to have a rod about 1½ inches in diameter, on the end of which is a grooved pulley for the purpose of belting this rod to the shaft from the size box. This rod should be cleaned from time to time to make sure no size congeals on it. Otherwise, trouble might result from laps.

Through the use of this split rod the threads separate easily on the front of the slasher and cause fewer break-outs. It is not recommended that this rod be used on sets lighter than 68x72.

There are as many split rods on the front of the slasher as there are section beams in the creels. These rods should be kept smooth at all times, and should they become rough by the cutting of threads they should be turned down and polished.

A rather large split rod of about 3 or 3½ inches in diameter on the front of the slasher may be used as the first split rod. This larger diameter causes the yarn to separate further back from the rod, which lessens the chance of kinks.

Records: A set of records should be kept regularly by the slasher room overseer or foreman, such as size formulas and the constructions on which they are used, temperature in size boxes, temperature and time of cooking in cooking kettles, temperature in storage kettle, and speed of slashers. Also, records of the life of slasher cloth, friction, cylinder packing, etc. A record of the sized and unsized waste should be kept, also, a record of laps.

Where it is necessary to have a careful check on weight, a record of the weight of the section and loom beams should be kept and these tests checked against an occasional laboratory de-sizing test.

By the use of a carefully kept set of records, the foreman should be able to control his operations in an intelligent manner.

In conclusion, the operation of the slasher room is a case of using good judgment and common sense. If the foreman can instill in his men the necessity for accuracy and care, uniform results will naturally follow.

Carolina Yarn Association Holds Annual Outing at Pinehurst

The Carolina Yarn Association held its annual golf tournament October 29 and 30 at the Carolina Inn, Pinehurst, N. C. Besides the golf tournament, two days of frolicking including dinners, vaudeville, and skeet shooting were enjoyed by many participants. More than 300 visitors and members were present. The meet adjourned Friday night to allow members to attend the football game between the University of North Carolina and N. C. State. Thursday morning was spent in registering, followed by golf and skeet in the afternoon and the following day. Winners in the annual golf tournament were:

First low net 36 holes, Jons Pons, Valdese, N. C., plaque and 6 high-ball cups; first low gross 36 holes, I. Pennington, golf bag; second low net 36 holes, Cleveland Welch, set of Hagen irons; second low gross 36 holes, Carl Ginter, 6 julep cups; first low gross No. 3 course, S. L. Diggle, sterling silver bowl; first low net No. 3 course, J. V. Garrett, Hagen woods; first low gross No. 1 course, Bud Johnston, cocktail cups; first low net No. 1 course, Henry Kelly, black golf bag; second low gross No. 3 course, Fred Sails, radio; second low net No. 3 course, Ernest Jones, tan suit case; second low gross No. 1 course, George Graves, bread and butter plate; second low net No. 1 course, P. L. Brown, sterling bowl. Other prize winners were: Carl Eiser, Kensington bowl; Albert Garrou, rifle; W. B. Saunders, carry-all; Robert Rapp, sandwich plate; K. C. Laughlin, thermo bottle; J. W. Woolen, combination pitcher-shaker; Frank Hall, silver coasters; Bill Barnhardt, water pitcher; S. Burton, pitcher and cocktail shaker; Edwin Nartin, sparkling bottle; A. J. Schautz, silver vegetable dish; J. P. Richman, suitcase; J. L. Keiger, silver pitcher; A. C. Patterson, Kensington pitcher; George Porges, leather jacket; Jack Degener, III, electric clock; Earl Constantine, putter; Joe Morton, rawhide suitcase; A. L. Brassell, sterling mayonnaise bowl; A. J. Borner, leather jacket; C. C. (Chick) Harding, raincoat; W. H. Curlee, bronze bowl; Joe Foil, silver tray; W. Thompson, dozen golf balls; Henry Stokes, Kensington bowl; John Stickley, cocktail shaker; Henry Blake, dozen golf balls; R. G. Woodbury, dozen golf balls; M. E. Pierson, dozen golf balls; Reid Maynard, golf jacket; J. Atkins, golf jacket; B. R. Hunter, dozen golf balls; and A. L. Lewis, belt and buckle.

Winners of the skeet shoot were:

High score Class "A", J. N. Weeks, automatic shotgun; runner-up Class "A", Frank Curran, sterling sandwich plate; high score Class "B", L. M. Graves, mayonnaise bowl; high score Class "C", Jone Mason, Kensington cigarette case; high score Class "D", Everett Jordan, Kensington brush set; high score Class "E", R. P. Smith, sweater coat; and high score Class "F", W. Brown, belt buckle.

Gaston County Spinners Discu Cotton Staple and its Processing

THE GASTON COUNTY DIVISION of the Southern Textile Association held its regular fall meeting at the Community House of the A. M. Smyre Manufacturing Company, Gastonia, N. C., Friday night, November 20. About 65 members of the association were present and many took part in the prepared questionnaire discusson. Marshall Dilling, superintendent, A. M. Smyre Manufacturing Company, led the discussions capably.

David Clark, editor, *Textile Bulletin*, Charlotte, N. C., who has been unable to attend the regular meetings of the association recently because of illness, was called upon and spoke for a moment on the progress of the association in the last year. An interesting feature of the program was a talk, and then the subsequent answering of many questions fired at him, by Paul Ceresole, representative of Jones, Gardner & Beal, Inc., Providence, R. I., in which he told of the manner in which Egyptian cotton is handled before it arrives in this country. During the answering of the questions asked by members of the association, many points of unique detail were brought out. This discussion of cotton took up a large part of the time as the mill men were especially interested in this feature.

Compares New Crop with Old Crops

Going into the first question on the prepared questionnaire, Mr. Dilling, the chairman, asked, *"How do you find the new crop of cotton in comparison with the crops of other years?"* This question is a favorite with this division and the chairman aptly said that it is of interest to all mill men because the customers have much to say about the breaking strength of the yarn, and the strength of the yarn varies seasonally with the type crops grown. Also it is possible that some changes may have to be made on the machines before the cotton is run well. In order to start the ball rolling, Mr. Dilling gave his opinion on this year's crop by comparing it with the crop of 1931, when a wonderful growing season prevailed and all thought that the cotton would be especially spinnable, but were disappointed when the stock reached the mills. During the cotton picking season of 1931, in the Delta region, there was no rain and excellent conditions for picking the cotton were prevalent. However, when the cotton came to the mills and would not run properly, everyone thought that his machinery was working badly or that the conditions were local and would not comment on them. Later it was found that the cotton from the Delta region was not running well in any cotton mills. The main trouble with the cotton of 1931 was that the conditions were so favorable that the cotton opened too quickly, thus allowing immature fibers to be picked. In other words, the premature opening of the cotton boll was not conducive to good running work in the mill. It was generally conceded by mill men that since this year's conditions were similar to those of 1931 that the cotton would again give trouble in the mill, but this has not been found to be so, because, as testified by Mr. Dilling, this year's crop has a good color, may be cleaned well, and spins all right. This pertained to Delta cotton and Mr. Dilling considered that the Carolina cotton is not so good this year, having more waste and shorter fibers than usual.

Reported by John C. Fonville.

W. N. Williams, Rex Spinning Company, speaking further on the Delta cotton, said that his mill began using it as soon as it could secure it and that he has found it to be better as far as running conditions are concerned than any cotton in recent years; also, the breaking strength of the yarn is increased a little. G. F. Lewis, also of this company, stated that the present crop of cotton is running well and that it has brought up the breaking strength of his yarn some 10 per cent. This is not true in every mill, but some of the mills have had increases in the breaking strength and others are just about the same, but none of the mills has had the breaking strength drop below that which it already was. A. P. Richie, superintendent, Dixon Mills, Inc., substantiated these remarks already made. H. G. Winget, superintendent, Victory and Winget Mills, Textiles, Inc., Gastonia, N. C., gave a report of several months' averages on breaking strength, considering the years 1935 and 1936. The average breaking strength for 1935 was 103 1/7 and for 1936 was 103. This was on 60s/2 made from Delta cotton. The comment was passed by J. W. Long, superintendent, Gastonia Combed Yarn Corporation, that this year's crop of cotton causes more lint and fly when being processed than that of last year, but he offered nothing as to whether the breaking strength is or is not increased. S. M. Cauble also thought that more fly is prevalent this year than last, and he has noticed that without any changes in the combers, less waste is removed at these machines.

MARSHALL DILLING, superintendent, A. M. Smyre Manufacturing Co., who conducted the discussions at the Gastonia meeting . . . . . .

Humidity in the Picker Room

The second question dealt with whether or not humidity in the picker room is beneficial, but no one present is having experience with this now. The chairman asked if very much more humidity in the cotton would permit the cleaning of the cotton as well as when there was the regular amount of humidity present. Mr. Winget thought that the more humidity in the cotton the harder the cotton is to clean, though he has had no actual experience recently with this. Mr. Hill, secretary of the association, told of the experience of the men in Tennessee who have tried the humidity and prefer it as long as it is automatically controlled; otherwise they do not care for humidity in the picker room. Here Mr. Dilling told of the lap-regulators for securing the proper amount of moisture in the laps coming from the pickers, but explained that these only indicate the amount of humidity present in the laps and do not regulate it automatically. Mr. Williams told of his experience with humidity and opined that the cotton may best be cleaned when it is dry, or when it does not contain so

much humidity. As an example, he told of having stored his cotton in both dry and damp places and conveying it to the pickers from these places.

A member asked if humidity causes variation in the laps on the pickers. He was answered by "if you can control the humidity you will have more even laps". "My experience has been that damp cotton does not clean as well as dry cotton" was the opinion of another man. Mr. Winget asked what percentage of the cotton is water, or what percentage humidity is in cotton. The answer to this was that about 8 per cent of the cotton is water, but that cases have been found where the percentage of water ran as high as 15 per cent.

Variation in Laps

The chairman agreed that the next question is age-old, he himself having been discussing it for the past 43 years, *"How much variation should be allowed in picker laps?"* J. W. Long allows a pound of variation each way, which is about 2½ per cent. At this point the chairman injected the very important question of whether the variation yard by yard was more or less than this 2½ per cent and Mr. Long said that the variation yard per yard was more. Whereupon the chairman asked him if the lap had a variation of 5 per cent yard per yard, what would be the advantage of having a 2½ per cent variation in the total lap.

H. GILMER WINGET, superintendent, Victory and Winget Yarn Mills, who was a helpful participant in the discussions at the Gastonia meeting.

"The 2½ per cent is the goal that we set for the operative to go by," said Mr. Long.

Commenting generally, Mr. Dilling said that mill men have made a mistake in confining the variation in laps to too close a margin because the variation in yard per yard is still present in the total lap. Mr. Whitener wanted to know how far a man could go in allowing variation. This question was answered by the chairman who said, "Allow the same amount in the picker lap as you allow yard per yard in variation, but at the same time you have to remember that some standard must be set for the operative to go by in making the laps." Mr. Whitener allows two pounds variation each way and gets good results with uniformity and Mr. Richie allows one pound each way, explaining that when a lap is a pound over the allowance and another one is a pound under the allowance that he puts these two laps on cards for test and finds that often the lighter lap is running the heaviest sliver and vice versa. Strange, this game of textiles.

It was agreed generally that running a picker lap the second time injures the stock but that some standard must be set so that the operative will know at what mark to aim in running the laps. If they are allowed to run them as they see fit, before long the laps might be off as much as 4 pounds, which circumstance would not create favorable operating conditions further in the processing.

S. M. Cauble, superintendent, Laboratory Cotton Mills, Lincolnton, N. C., said that it makes a great deal of difference in just changing picker operatives and told of having changed his and of the numbers having jumped two numbers just from this alone. Mr. Williams said that often mill men stick too close to the standards, just because they are standards, instead of trying to adjust themselves to local conditions. He pointed out that in one mill a man might allow more variation than in another plant; in his mill he is not so close in checking on the picker laps. His theory is that a man should determine how close he can come to the numbers with variation and then allow as much as he needs.

"When spinning begins to run bad, what do you do to find the trouble?" was the next question considered. Quite a difference of opinions was given on this subject; Mr. Whitener said that he would look for many things; Mr. Long would first consider the cotton; and still another man thought that it was an individual problem and should be corrected locally. Mr. Dilling said that if the work suddenly began to run bad that he would look to the atmospheric conditions. G. A. Lay would look to unevenness somewhere incident to the spinning and then to his travelers. Summing up, it was found that most of the men would look to the humidity, travelers, cotton, unevenness, and some local condition. Mr. Winget humorously added that if the condition prevailed that new rings should be installed.

Next taken up was, *"How can you prevent soot on spinning bobbins, especially on filling wind?"* and Mr. Richie said, "We can't tell how to keep soot off of the yarn but we can tell you how to cover it up," proceeding to do so with an explanation of the reverse warp wind which distributes the soot so that it cannot be seen easily. Mr. Winget maintained that often the thing done to prevent soot in one case will not remedy it in another. Describing a condition which prevails in a good many cotton mills, he told of the air becoming too warm and too humid and of how the pressure of the hot air held the air next to the spinning rings still, thus allowing the soot to settle on the yarn. If the windows are cracked slightly there will be a small degree of circulation, just enough to prevent the soot from settling on the yarn. He also uses the reverse warp wind in his twister room to alleviate the amount of soot. Speaking further on the subject, he said that many men claim the soot comes from the mill being located too near the railroad so that smoke from the engine enters the mill and leaves soot upon the yarn; this could not be so in his case, he explained, because his mill is located on a small railroad and the train rarely ever goes by. "The best thing you can do to eliminate soot is not to have the mill so hot," he finished.

Further discussion of this question brought out that if the humidifiers are run long enough on Monday morning to cause the air in the mill to circulate, less soot gets on the yarn, and that the soot predominates in the winter when the windows are closed, and that the reverse warp wind will not eliminate the soot but will distribute it so that it is not so easily noticed.

Reverse Warp Wind versus Regular Wind

The follow-up question to the discussion on soot on the yarn was *"Does reverse warp wind run as well as regular warp or filling wind?"* which was answered by the chairman in the negative. He stated that he does not get so good running work with the reverse warp wind and that he has never been able to make it run well. He fully understands that the trouble is caused by the greater distance that the yarn has to travel, using the reverse warp wind, and the greater balloon created. One member suggested that separators be used. Mr. Dilling agreed that the separators may be helpful but that he hesitates to install them, speaking of them as a "necessary evil". Mr. Long claimed that he sees no difference in the two methods and he is having experience with both, one of his mills uses the reverse warp wind and two of them use the regular wind. This is on medium coarse numbers, 16s to 30s. Mr. Richie reported that 60s do not run so well with the reverse warp wind.

Answering the question as to the results obtained with the self-oiling twister ring, Mr. Winget announced that he has several frames of this type and that they are faring satisfactorily. The package formerly made was 3½ to 4 ounces and now it is 8 ounces, and it is giving good results. The self-oiling ring lessens the degree of human element and the consequent hazards of oiling derived therefrom; he feels that less black yarn is made on the self-oiling rings than on the regular rings.

Mr. Whitener answered the next question, *"Do you get better winding on high-speed or low-speed winders?"* from the standpoint of the consumer by saying that the yarn wound on the high-speed machine comes off the cone better than that wound on the slower machine. This pertained to single yarns. Mr. Long contended that not so good a package is made on the high-speed frame when ply yarn is wound. To this a member suggested that the speed and lay of the twister be changed so that the ply yarn might be wound satisfactorily.

Discussion of Egyptian Cotton

Paul Ceresole, representative of Jones, Gardner & Beal, Inc., cotton merchants, gave an interesting talk on Egyptian cotton and answered questions by members of the association. The general context of the talk and the discussions pertaining to it were as follows:

American cotton is baled and is carried from the grower through the various channels to the mill, being sampled at each change of hands, and consists of one grade of cotton. The mills know just what they are getting because the bale is usually from the same soil and vicinity. Egyptian cotton, on the other hand, is all brought to a large warehouse where 100 bales are blended several times until the mix is as specified on the order. The soil in Egypt often produces 500 or 600 pounds of lint cotton to the acre, and the lowest produces about 250 pounds to the acre. Mr. Ceresole stated that he has seen as much as 900 pounds per acre, but this, of course, is unusual.

The reason for all of the blending of Egyptian cotton is that there are as many grades of this cotton as there are cotton mills, so that it is really quite a necessity. The blending is an advantage because the cotton is more uniform; even in this country the blending is carried out with as many bales as possible opened at a time, but on Egyptian cotton, this blending has already been performed. This is one reason why Egyptian cotton has taken such a strong hold in this country today.

The tariff on the foreign cotton is high. Until this tariff was imposed on the cotton, the European mills did not use Egyptian cotton, but as soon as the tax went into force, the European mills awakened to the fact that if American growers were protecting their product from the foreign product, there must be something of value in the foreign cotton, and they immediately began using it and now they use much of the cotton coming from the rich soil of Egypt.

One of the advantages that the cotton has over American cotton is the pleasing appearance of the package. The bales weigh on the average of 730 pounds and are put up in an attractive manner with many bands. Rarely ever does a bale become spoiled in transit. When the Egyptian cotton is sampled, one bale is graded and represents the grade on the whole 100-bale lot because the cotton is all blended and the one bale is the same grade and staple as the other 99.

The speaker then told of some mills that are using the polarized light method of grading cotton for the percentage of mature and immature fibers. It was also agreed that the method of handling of American cotton has improved 100 per cent in the last 15 years. Sometimes cotton containing humidity is graded as longer staple than cotton which has had the opportunity to dry. Sometimes there is as much as 1/16-inch difference in the opinion of the grader on staple of cotton of high and low humidity.

When asked the cause of some of the bad cotton that comes into the mills, a member stated that much of this is due to the smaller cotton grower who bales his cotton and leaves it sitting on the ground until the time for marketing it arrives; the large cotton grower, he explained, warehouses his cotton immediately thus protecting it from the elements.

The ginning of cotton in Egypt is done in roller gins and not the saw-type gins and less than a bale of cotton is ginned per day in each unit. It was explained that the ginning of the cotton had nothing to do with the cotton fibers sticking together when it arrived in this country, but that this is due to the compresses in Alexandria, Egypt which packed it into smaller bales in order to secure a lower rate from the shipping companies, which charged for transporting the stock according to the number of cubic feet of space a bale occupied. This cotton is not damaged at all, but it should be opened after reaching this country and allowed to stand for awhile.

"Character" of cotton was discussed but it was brought out that no two cotton classers could agree upon just what character is or agree upon the class of character. Mr. Coker of Hartsville, S. C., who has been making tests regarding cotton and who is attempting to raise the general character of this product was quoted as saying that if a record of rainfall could be kept, that cotton with the best character might be located in the various vicinities of the cotton growing sections. Cotton is opened by nature when there is a little dry weather and sunshine, but if the boll remains closed too long the fiber assumes a dull color and loses a little of its strength. It was also said that Delta cotton is not of quite so good a character recently since the levys have been built to prevent the Mississippi river's overflowing the cotton acres and bringing the rich sub-soil to fertilize the land. This is interpreted to mean that fertilization has some effect upon the character of the cotton. Staple of cotton becomes mixed mostly because the ginners do not keep the seeds separated and the farmer does not know just what he is planting. The mixing of cotton seeds causes the staple to become shorter. There is an effort being made today to keep the cotton seeds up to a standard.

This closed the discussion part of the meeting and the election of officers for the executive committee followed. R. F. Harris resigned his position on the committee and was succeeded by S. M. Cauble, superintendent, Laboratory Mill, Lincolnton, N. C., and A. P. Richie succeeds William McLoud, deceased. The members of the executive committee for the ensuing year are, W. N. Williams, J. W. Long, H. G. Winget, A. P. Richie, S. M. Cauble, and Marshall Dilling, chairman of the division. Before adjournment the members stood for a minute in silence in tribute to William McLoud, the member of the executive committee who was fatally injured in an automobile accident this year.

Uncle Sam's slogan for 1940: Friends, Americans, Countrymen, lend me your ears—the dollar has no more value.

Several hundred years ago Aesop said, "Wise is the man that does not remove the safety lock on a picker beater."

The bard Homer once said, "Keep thy limbs out of the machinery in a cotton mill because they will spoil the finished product."

Textile Research Topics Discussed

Willits, Kilheffer, and Farr Address Annual Meeting of U. S. Institute for Textile Research

FOR THE FIRST time, the plans and objectives of the survey of trends in the organization of textile production and distribution, begun last July, were outlined by Joseph H. Willits, Wharton School of Finance and Commerce, at the annual dinner of the U. S. Institute for Textile Research, Inc., held at the Waldorf-Astoria, New York City, November 5, 1936. E. H. Killheffer, executive vice-president of the Institute, who is with E. I. du Pont de Nemours & Co., Wilmington, Del., maintained in a speech before the assembly that there is a genuine need for a comprehensive research program in the textile industry, and Wanda K. Farr, Boyce Thompson Institute, presented a paper studying the cellulosic textile fibers.

In discussing larger textile sales volume through lower distribution costs, Dean Willits asked if the cost of distribution of textiles, and their cost to the ultimate consumer, could be reduced sufficiently by more general integrated vertical control of manufacturing and selling to increase and stabilize demand upon a sales volume more nearly proportional to the productive capacity of the industry. Answering his own question he then went into an explanation of the survey that is being conducted for and financed by the Textile Foundation, under the sponsorship of the committee on economic research of the Institute for Textile Research. The scope of the survey centers on those developments in organization which have involved on the one hand, sellers endeavoring to achieve control over their markets, and on the other hand, buyers attempting to achieve control over their sources of supply. For example, some weavers licensed users of their fabrics and others have gone so far as to establish their own cutting plants; and at the same time some retailers have established close contacts with garment factories and cloth mills, and cutters have done likewise with weavers or converters. Thus the study is being focused on those developments in textile production and merchandising which involve vertical integration, either formally through ownership or informally through contractual arrangements.

Textile Research

The report is being based upon an analysis of the experience of those companies both inside and outside of the textile industry which have tried some form of vertical organization or merchandising in the last 10 to 15 years. The various textile associations are co-operating with the committee in conducting this survey.

Speaking on the need for an awakening of the entire textile industry, in the research field, Dr. Killheffer brought out that there has been a lack of movement in research policy in this country, but that other countries have already launched their research programs. He explained that the U. S. Institute for Textile Research was founded for the sole purpose of promoting co-operative textile research in America but that except for the Textile Foundation, the Chemical Foundation, and one or two textile manufacturers, no start at all would have been made.

Dr. Killheffer said that manufacturers cannot know too much about the materials with which they are working. "As we learn more about the materials and their behavior under varying conditions, our processes often change. Perhaps some processes should be radically changed and possibly others omitted altogether.

"This is not done in a moment. Invariably there must first be fundamental scientific research, the results of which lead to applied research and then finally to reduction to actual mill practice. Time and money are required. No one mill organization can afford the financial burden. Co-operatively, the burden can be light. If the textile industries of other nations go after the fundamentals in this way, how can American industry expect to hold its place if it neglects the opportunity?"

He touched upon the possibilities of research in the future and the possible development of textile fibers unheard of today. As an example of research, rayon was considered.

Speaking on a manner of financing a program, Dr. Killheffer brought out that if every textile mill contributed one-tenth of one per cent of its annual sales that the resulting fund would be approximately $2,500,000 per year. By way of comparison the research expenditure of the organized chemical industry in the United States equals about 5 per cent of sales.

"You in the textile industry think you know something already about this serious threat from the Orient. In my opinion you have only witnessed the beginning. Here is where research and tariff are interwoven. You must have one if you are to have the other. Without tariffs that protect you against abnormally low-cost nations, you cannot support a research program financially. Without research that will keep you abreast of the times you can less easily justify tariff protection. Your only chance of lessening your dependence on tariffs is to be far in advance of others in quality and production cost."

A New Viewpoint in Study of Cellulosic Fibers

Illustrating her address with lantern slides, Dr. Farr explained that cellulose, in the form of small uniform sized ellipsoid particles, has been identified in the living cytoplasm of young plant cells which are forming cellulose membranes. These structures have been observed by botanists for the past century and have been designated by various investigators as "granules". She showed that the cellulose particles may be separated from the living cytoplasm so that study may be made.

"The fractions of cementing material which may be extracted with weak solvents have already been subjected to uronic acid analyses and the results establish definitely the pectic nature of one of the constitutents.

"When a single fiber is treated with cuprammonium hydroxide, the outer limiting membrane does not dissolve. The rapidly swelling inner layers of the membrane burst through this resistant covering in a series of balloon-like enlargements."

In closing, Dr. Farr said that a sense of direction may be put to some use in a laboratory, but that assurance is fundamentally incompatible with any search for knowledge.

Tennessee Men Discuss Mill Problems and Hear Talk by McConnell

MEETING for the second time since its inception last March, the Tennessee Division of the Southern Textile Association held a discussion on practical questions concerning all departments of the cotton mill, Saturday morning, November 7, in the Andrew Johnson Hotel, Knoxville, Tennessee. 62 regular and associate members attended and many manifested interest by injecting questions other than those included on the prepared questionnaire.

B. W. Bingham, overseer carding, Brookside Mills, Knoxville, Tenn., led the discussion. Robert J. McConnell, general manager of service, Whitin Machine Works, Whitinsville, Mass., gave an interesting talk on general mill practices and also took an active part in the round-table discussion. An abstract of the speech of Mr. McConnell is given on page 77 of this issue.

In opening the discussion part of the meeting, Mr. Bingham urged that all present take an active part in answering the questions so that the meeting would be more beneficial to all. He then called for answers to the first question on the prepared list which was, *"What is the best setting for opening and picking machinery on the various staples of cotton? Did you determine these settings in view of the least amount of injury to the cotton, or the maximum amount of cleaning and preparation for the card?"*

John T. Parkinson, Standard Knitting Mills, Knoxville, answered by saying, "I have only had experience in the running of one cotton mill; I've been there 26 years so I can't give experience except from the one plant." He went on to tell that in setting the beaters, 2-blade, 3-blade, or Kirschner, that he uses the old rule taught to him many years ago of setting to the width of a 2-foot rule. He usually runs 1 1/32-inch cotton but does not make a change in the settings when the staple changes in some of the stock being run. Mr. Parkinson received much of his training in the mills of England.

Humidity in Picker Room?

The chairman passed to the next question *"Is it advisable to run humidity in the picker room?"* This was discussed by a member who had run humidifiers in his picker room for two or three years and who thought that it was all right to run the humidifiers if they are automatically controlled, otherwise it is disadvantageous because there is danger of getting too much moisture in the cotton. Mr. Bingham observed that if there is too much humidity in the stock, the pickers will not be able to clean it properly. Mr. Parkinson thought that the presence of too much humidity will affect the later processes adversely.

The question of the percentage of relative humidity arose and Mr. McConnell, Whitin Machine Works, Whitinsville, Mass., said that about 5½ or 6 per cent moisture is the best for good running work. He then said that no matter what percentage of humidity is in the raw stock, that as the picking process is being performed, the cotton has a tendency to adjust itself back or up to the normal 5½ or 6 per cent. If there is too much moisture in the cotton, as it is being run through the picker, the moisture will leave the cotton as the beaters strike it, and the result will be that the regular amount of moisture is left in the stock. This statement was substantiated by Mr. Bingham who said that he has never found more than 6 per cent moisture in the cotton coming from the picker unless the bale of cotton was wet and then a good lap was not formed and the cotton was not cleaned well. The wet cotton episode occurred when the stock was stored in a wet warehouse.

James Ashe, Standard Knitting Mills, Knoxville, asked for experience with re-circulating air in the picker room. He told of having visited a mill where about 50 per cent relative humidity is kept in the picker room and where the air is re-circulated. This mill never loses a lap from the pickers. A visitor to the division said that he has had experience with re-circulated air and that it works all right.

Says Oil Spraying is Big Help

"What are the advantages of oil spraying. Where is the best place to apply oil?" was next considered. A member testified that "I have used oil and to advantage. At first I did not know how to apply it and I got too much oil on the stock. The result was that

B. W. BINGHAM, of Brookside Mills, chairman of the Tennessee Division of the Southern Textile Association . .

I could not keep my cards stripped. Finally we cut down on the amount of oil used—we had been using about 1½ per cent—and began to use ½ per cent. From then on the work ran all right. When the oil was being sprayed on the cotton, I noticed that the machines were cleaner and that there was less lint in the room. Once when I ran out of oil the lint became so predominant that the place looked like another mill."

Next discussed was a question dealing with the variations in picker laps and the tolerated difference in variation. One man reported that he has never found anyone to admit that he allowed more than ½-pound variation either way, heavy or light, in his laps. However, he has discovered from experience that it is foolish to take a lap back to the opening room when there is no more than a pound variation one way. Mr. Parkinson of the Standard Knitting Mills told of using a set-back machine in his plant; this consists of a finisher picker section upon which the laps that vary over ½-pound on either side are run again. "We do not keep this machine running all of the time," said Mr. Parkinson, "but probably run it about 40 or 50 per cent of the time." He went on to explain that it was not really necessary to send the laps back in the picker room if the variation was a pound in weight either way, but that if more tolerance than ½-pound were given the picker man that before long the picker man would be putting out nothing but bad laps. He said that he has run tests to prove this. R. T. McWade, Brookside Mills, Knoxville, Tenn., vice-chairman of

Reported by John C. Fonville.

this division, said that he saw no use in sending the laps back for as little variation as ¾-pound heavy or light. "I feel that ½-pound is too little for which to reject a lap. Our loss in laps is about one per cent."

One man reported that they never send a lap back unless something is wrong with the picker. Of course if the variation is too much this proves that something is wrong, but for variations of one pound the laps are not returned. Here he gave some figures on a test that had been run:

Test on Variation in Size and Strength

The test was made on warp spinning frames over a period of 7 weeks. 4 bobbins were taken from each of 390 spinning frames, two from each side, always in the same relative position. 112 of the frames were on the third floor and the remainder of them were on the fourth floor. The test was conducted in the laboratory but the yarn was not conditioned in skeins as in the case of the regular breaks. Every low break was investigated and the following is an account of the reasons for low breaks: Roving caused 33 breaks, top rolls caused 6, front steel roll caused 4, and the builder cam caused 4, giving a total of 47 breaks. For the variation in break, 26 bobbins broke between 70 and 80 pounds, 670 between 80 and 90, 801 between 90 and 100, and 63 between 100 and 110, giving 1560 bobbins broken with the grand average of 90.2 pounds. For the variation in number, 4 bobbins numbered between 23s and 24s, 140 between 22s and 23s, 1399 between 20s and 22s, 16 between 19s and 20s and one numbered 16.35, giving 1560 bobbins weighed with

ROBERT T. McWADE, vice-chairman of the Tennessee Division. He is superintendent of Brookside Mills . .

the grand average of 21.19s. The weakest break was 21.51s, breaking 70 pounds, and the strongest break was 20.16s, breaking 110 pounds. The grand average was 21.10s, breaking 90.2 pounds, having a factor of 1903. [Editor's Note: The factor of yarn is secured by multiplying the breaking strength times the count. For further information on even yarn, read the article by Fay H. Martin that will appear in an early issue.]

After giving a summary of this test, he continued by saying, "The total weight of the lap does not make much difference—it is the variation per yard that counts. The important thing to remember is that the cotton must be kept going up on the screens evenly. The feed should be kept level and there should be no hesitation in the mechanical parts of the picker. No matter what you do, you are going to get some variation in yard per yard at the card and the total weight of the lap does not make much difference. I feel that the running of the lap through the machine again does more harm than good."

A member then told of a test that he often makes by taking two laps, one that is two pounds heavy and one that is two pounds light, and weighing them yard by yard. For awhile one lap will weigh more, yard per yard, and then the other will catch up with it, and the variation will be as much as 1½ ounces per yard. This test shows that the variation in the total weight of a lap has nothing to do with the variation in the yard per yard variation. He has made tests where the variation yard per yard is as much as two ounces." In closing he summed the question, "I see no reason to send a lap back for variation of one pound because the more beating the cotton gets the weaker it will become."

Proper Settings on Cards

"On a card what settings will cause weak and uneven yarn? What settings will benefit yarn and improve breaking strength? How would you determine the correct settings?" was the first carding question. This question was put to Mr. McConnell who answered, "If I were running a 12-ounce lap I would set my feed plate to 10/1000, knives to 10 or 12/1000, licker-in to cylinder 7/1000, back plate 27/1000 on bottom, 54/1000 on top, but the most important thing is to have the licker-in sharp and the feed roll in good condition. The flats should be set to 8/1000, having two sets of gauges, one to set with and one to check by because close and accurate settings are essential. The setting on the doffer in the front should be 7/1000. Some mills say they set to a close 10/1000 or loose 'something' and still other mills have their grinders setting the flats on the outside to 10/1000 and in the middle to 12/1000; the settings should be uniform across the flats. The draft should be right and the wire kept clean. It is possible to vary these settings 2/1000; for other settings the regular standard settings may be used. Lastly, don't try to card too heavy."

The chairman asked if any other speeds than the regular 450 r.p.m. licker-in speed were being run and if the licker-in was injurious to cotton. This was answered by one member who said that he runs too different kinds of cotton sometimes, having different staple, and that the same licker-in settings may be used on the longer staple as on the short staple without injury to the cotton.

Twist in Roving

The next carding question dealt with the correct twist for roving in order to get the best breaking strength and good running work in the spinning. Mr. Parkinson told of his experience; he has worked with the same spinner for 23 years and he said that he doesn't believe there is another spinner that demands the twist that his fellow worker does. His plant is equipped with the Belger roving tester and gets excellent results from its use. He humorously added that even when by test that some of the twist had been removed and the spinner discovered the fact, the spinner wanted the twist put back in whether the work ran well or not. "The spinner has more to say about the twist in the roving than the carder; I try to keep my spinner satisfied," he concluded. The chairman, speaking in levity, said that he tells his spinner the twist is still in the roving after it has been removed. Guy R. Goodwin, Brookside Mills, Knoxville, claimed that the Belger roving tester is the best thing he has ever heard of—that where others have to wait for the roving to break back before knowing what to do to remedy trouble that the roving tester anticipates trouble in time to alleviate it.

The question *"Can you feel a bobbin of roving and break the strand and tell whether the roving will spin or not?"* was injected by a member. Answering this Mr. Goodwin said that if the roving will pull out of the creel without breaking that it contains enough twist. This point was verified by other men present.

The chairman described a condition in his mill where some of the skewers in use were old and worn and others were in good shape. He said that the roving being run from the good skewers could contain less twist than that run from the old skewers but that it is difficult to keep the old and new skewers separated, so the twist inserted is that which will be enough to compensate for the friction of the old skewers. If the skewers could all be kept in good condition then less twist would be necessary. "If we take out some

twist and make no other changes on the frame, then the work will run bad. However, if we take out some twist and then put the proper lay gear on and the proper tension gear also, the roving frame runs just as well as before."

Roll Settings for Good Breaking Strength

Taking the next question on the questionnaire *"How do you determine the best roll setting on roving frames to get the best possible breaking strength in your yarn?"* the chairman called on Mr. McConnell who answered that the proper way to ascertain the best roll settings is to set just as closely as possible and then work back from that point until the best breaking strength is secured. The closer that the rolls can be set and get good results, the better it is; all settings depend on the type cotton and the staple being run. He then branched off into a discussion of twist and said that this factor is most important in a mill. He has seen spinning run bad for lack of twist in the roving. The stock should come through the rolls evenly. It is not best to change over the entire room when testing for the proper roll settings, but to use one frame for test work and then the rest of the department may be changed accordingly when the proper settings have been found. Mr. Bingham also follows this procedure in testing for the proper roll settings for breaking strength.

Cork Rolls on Roving Frames

The next question asked for experiences with using cork-covered rolls on roving frames. Mr. Parkinson told of having first tried cork rolls on just a few deliveries and of being satisfied with it and adding it to his frames. He stated that the cork gave a little more even yarn than did the leather and that he thought the yarn made on the cork rolls was an improvement over the yarn made on leather rolls. His frames are equipped with cork now, with the exception of one roll and he is thoroughly satisfied with it. He has the cork rolls rebuffed at his own plant and also puts on the cots in the plant, but he is careful to have one man to specialize in this work. Another man said that he is convinced of the long life of the cork rolls and the superior work turned out by their use, but he averred that more fly was noticeable with cork-covered rolls than with leather-covered rolls. He also has a man to cover the rolls and buff them in his mill.

One member has trouble when changing from 50s to 90s on his spinning frames equipped with cork rolls and so stated; this trouble may be eliminated by re-buffing, was the advice given him. This will remove the grooves in the cork rolls. It was also advised that the front rolls not be re-buffed too much because a certain amount of cushion is necessary for good running work and the re-buffing will remove part of the cushion.

Y. Veynar, Cherokee Spinning Company, Knoxville, asked if the yarns made on cork rolls were used in weaving and he was answered that they were. It was generally agreed that the yarns made on cork rolls were a bit more fuzzy than those made on leather.

Another member had seen leather rolls that were re-buffed and giving good service. The chairman stated that he has never heard of this before but that the idea sounds good to him; this applied to spinning because he has seen leather drawing rolls re-buffed.

Mr. Ashe turns the arbors for his cork rolls down to 7/8-inch so that more cushion may be gained on his rolls. There is no difference in the way the work runs when this is done, but it is a little more economical.

Cleaning in Spooling and Warping

Answering the question on cleaning in the spooling and warping to prevent loose lint, Herbert Hutchens, Brookside Mills, Knoxville, said that "You just have to keep after it." Mr. Goodwin wanted to find a system of cleaning that would suck the lint in and keep it in.

Going into the weaving questions, the percentage of relative humidity to get good running work on broadcloths, print cloths, and fine lawns was discussed. The consensus of opinion was that from 76 per cent to 80 per cent was about the right amount.

J. R. Boyles brought up the question of twist being removed from the warp yarn and injuring the production and quality of the work in the weave room. Another question on the causes of jerked-in or whipped-in filling was discussed and some of the reasons given for this were bad leather on the box front, bad pickers, and the temple knives not working properly.

This closed the regular discussion meeting and the association decided to postpone the election of officers until the spring meeting and to announce the place of the next meeting at a later date. The members adjourned to the dining room of the Andrew Johnson Hotel where a luncheon was served.

What Makes a Well-Run Mill?

A talk at the Knoxville meeting,

By Robert J. McConnell
Superintendent of Service,
Whitin Machine Works

THE DIFFERENCE between a well run mill and a poorly run one is generally because of a difference in the amount of attention paid to the little things rather than a great difference in the brain capacities of the managements.

When I first entered the mill business it was enjoying a Roosevelt boom. This was in 1907 and the mill I was employed by had made a profit of a million dollars during the previous year and everyone was happy. To make 32s warp and 40s filling, Strict Middling Arkansas cotton was used with a staple length of 1 1/8-inch and it was beautiful cotton. The opening consisted of feeders and there were three lines of picking. They double-carded, had three lines of drawing and four-processes of roving. The 32s warp was made from 8.00-hank double and the 40s filling from 10.00-hank double. The finished product, which was colored, sold for around 9 cents a yard and ran around 6 yards to the pound. Pretty soft, wasn't it? The doublings ran into the millions, nearly three.

Today a mill making the same numbers would use much shorter cotton and the total doublings would be in the neighborhood of 50. If they had super-draft roving, the doublings would be 12. What does this mean? Simply this, that you can't run a mill today as it was run in those days. There is no chance to bury your mistakes in doublings. Every single one of the preliminary processes must operate as near to perfection as possible. Machines must be mechanically right, set to the best advantage and operated with extreme care. First, the cotton mix must be properly made and as many bales as possible laid out in the opening room and the operatives must feed this mix to the openers in a regular and systematic way. In some of the Canadian mills, where the English system is more closely followed, bales of cotton are opened and allowed to dry before being put in the machines as they feel they get much better cleaning when cotton is dry.

Whatever type or make of picking you have, better work will be produced if proper settings are made and maintained. Feed controls must always be in proper working order and as near a constant level as possible must be maintained in feed boxes. Feed rolls must be in good mechanical condition with regard to journals, bearings and gears. Beaters must be run at proper speeds and set right, grid bars set at proper angles, fan drafts not too high nor too low, cages in good condition, the evenness of the de-

livered lap over its entire area depends on the fan draft and screens to a great degree. Evener cones kept free from oil, cone belts kept clean and of proper length, evener motions taken down and cleaned at regular intervals, etc.

You say there is nothing new about all this and I agree but too many mill men take these things for granted. When machines are installed or overhauled a great deal of attention is paid to them and then gradually less and less.

Cards are to me the most interesting machines in the mill. Here we have a big clumsy-looking machine yet built so well that it is possible to set rapidly moving cylinders within .007-inch and if these parts should touch not only would the quality of the work be adversely affected but material damage would be done. These close settings are made and rubbing of these parts occurs so infrequently that in the average well-run mill it is considered by the grinder in charge almost a disgrace if it does happen.

The card is the last machine where anything can be added to the quality of the work. It should be regularly inspected, settings should be checked monthly on a single-shift basis, flats should be reset every three months single-shift basis, cylinders and doffers should be ground every four weeks, flats every eight weeks, on the average. At grinding times the card should be thoroughly inspected to see that mote knives are properly set and not nicked, that lickers-in are sharp and with no bent or hooked wire. Wire on the cylinder should be closely examined and jams straightened before grinding. Emery fillet on the grinders should be changed regularly and all grinders should be inspected once a week by the boss grinder or where there is none by the second-hand or overseer. When the card is in operation, stripping must take place at regular intervals and must be done in a thorough manner because even though a card is properly set with wire sharp, etc., unless it is stripped properly and at right intervals, it will not produce good work.

Advocates Forms for Records and Reports

The best way to insure proper mechanical conditions is to have forms made for each different kind of machine and have regular periods for inspecting certain parts, the fixer, grinder or section man checking the parts for wear and passing the form to the second-hand when the inspection cycle is completed; the second-hand in turn passing it to the overseer. At certain periods the second-hand should over-inspect parts that have been checked by fixers and make his returns on a similar form and pass it in to the overseer. In this way, the inspection will be more than perfunctory because the overseer will be the one to compare.

In making these inspections there will have to be some agreed on point where worn parts shall be replaced. As for instance, bolsters on spinning should be replaced when worn more than .003-inch or a front steel roll should be repaired when it runs out more than .005-inch. It is absolutely necessary that whatever tolerances you decide upon shall be understood and be specific so there will be no chance for argument or excuse. When a system of this kind is started in a mill, for a time the repairs increase but in the long run with an inspection system the cost is lower. It takes some time to decide on tolerances and great care should be taken to make sure that worn parts are not taken out too soon or kept in too long. This knowledge can be had by making tests and finding effect of worn parts on quality and production. For example, I found out that my labor cost for everything in a spinning room amounted to $2.00 per year per revolution of the front roll, single shift basis, on each spinning frame so I had the speed of the front rolls checked at frequent intervals and if the speed was down two revolutions from standard, I would have the pulley on motor driving shaft changed. These pulleys were made of paper or wood and would wear down after a while and cause the loss in speed of the front roll.

Some of the larger mills have very well organized maintenance systems with mechanical engineers in charge and all matters pertaining to mechanical upkeep are taken care of by this department but any mill, regardless of size, can develop a system of inspection and maintenance that will guarantee proper mechanical condition of the machinery.

"Scientific Management"— What is It?

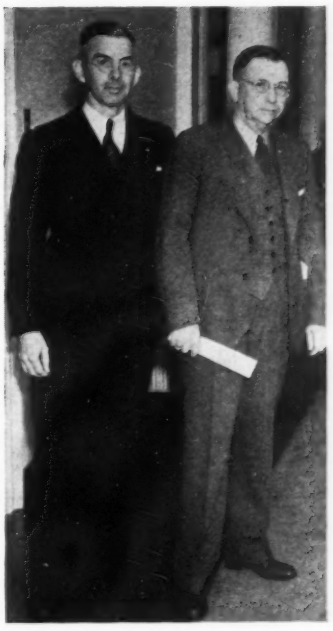
In the past ten years the textile business has made great strides forward in what might be called scientific management. In my early years in the business the methods of testing were simple and consisted mainly of weighing the output of the different processes at certain intervals and trying to out-guess the weather. There was very little equipment used for humidifying and no controls. The numbers were kept as near to standard required as possible by frequent changing of draft gears. A great many spinners in those days made their reputations because of their ability to anticipate changes in the weather and by heavying up or lightening the filling yarn, taking care of fluctuations in weight due to changes in humidity. When the cloth weighed on the standard, regardless of moisture content, every one was happy. Today, most mills are equipped with humidifying systems with controls that maintain a constant humidity so that draft gear changes to maintain proper weights have to be made but seldom.

Every mill should have a special room for weighing and breaking. It need not be elaborate, but should have humidity and heat control so that the day to day sizings and breaks will be relative. A great deal of money can be lost by not having proper equipment for testing. No mill can afford to be without proper testing equipment and in addition to reels, grain scales, power yarn breaking machines of skein type that can also be used for breaking cloth, should have a Belger roving tester and a Saco-Lowell sliver tester. The last two machines, if properly used, are of great help to the carder in regulating tension and making proper roll settings. The Belger tester gives a graphic picture of amount of twist in roving and evenness of tension and the sliver tester will record the effect of changes in draft distributions and roll settings and not only saves a lot of time but takes this phase out of the guessing and judgment era.

Specialized Jobs

Specialization has not been taken up very generally in carding and spinning. There are some mills that specialize on the cards by having hands that do nothing but strip, tenders who clean, oil and operate cards, and in some of the very large mills, can doffers. It might interest you to know what proportion of time is involved in the different card operations. These figures are approximate and vary with the production of card. The production was 15 pounds per hour on the job where these figures were compiled. 22 per cent of time is spent for stripping, 15 per cent for creeling, putting laps on stands, etc., 13 per cent for doffing and 50 per cent for cleaning and oiling. As competition increases it may become necessary to do more along the lines of specialization in the carding and spinning departments. If it does, it will be necessary to know more about actual times involved in doing certain parts of the work than is now known. This will require time and study and co-operation. Whether specializing comes or not this knowledge should be acquired by overseer in charge of job so that he will have a better appreciation of what each job actually is with regard to the amount of labor expended.

Compliance is Theme of North Carolina Convention . . . . .



Left, Hunter Marshall, secretary; right, A. K. Winget, new first vice-president . . . .

THE THIRTIETH annual convention of the Cotton Manufacturers Association of North Carolina opened at Pinehurst, N. C., on November 5 with a record registration of over 300 present. Whether it was the time, the place, the program, or the renewed interest in associational work which drew this crowd of North Carolina manufacturers was a question but to onlookers it seemed that the answer was found in the fact that the business meetings were well attended, and the program one of well developed associational activity.

The theme-song of the convention was compliance. President Harvey W. Moore stressed the needs for compliance in his opening address and the vigorous manner in which Ex-Governor O. Max Gardner, at present Washington counsel for The Cotton-Textile Institute, Inc., attacked the non-compliance program of the rayon weavers and upheld the benefits to be derived on the part of cotton manufacturers from a plan of compliance was magnificent to hear. Governor Gardner's talk contained sincere counsel when he urged the cotton-textile industry to heed the fact that for the first time in a decade it is showing evidence of getting on its feet again . . . when he cautioned against the hazards of overstepping good sense through the adoption of a third shift; and yet, it carried a decided threat with the thought "if the cotton textile industry should set about deliberately to bring about its own destruction just at a time when the outlook is the most promising in the past decade, the quickest and surest way of doing so would be through an attempt at third shift operations. If we continue the policy of pursuing our legal rights to do wrong to our own interest and to the ultimate interest of those who manipulate our machines, the police power of the Government will surely intervene and its intervention will be invoked in the name of *social justice* and not in the name of the right of private property."

Left, Harvey Moore, retiring president; right, Herman Cone, new president . . . .

The tax question was gone into deeply by Honorable A. J. Maxwell, commissioner of revenue of North Carolina, who outlined a perspective and comparative view of the problems as applying to his state; and by Bernard Cone, of Greensboro, chairman of committee on taxation of the North Carolina association, who discussed the windfall tax which he branded as "not a tax on income but a tax on an illegal exaction or expense you didn't have to pay."

The splendid results of the association's statewide textile safety contest were outlined briefly by Marion W. Heiss, Greensboro, whose work in this matter has been faithful and untiring. One hundred and seventy-one cotton mills, with 59,742 employees, participated in the contest, the first of its kind to be sponsored by a state association.

In order that the plants would compete on a fairly uniform basis as to the hazards per man-hour worked, the contestants were placed in three groups: Group One, comprised those plants having 350 employees; Group Two comprised those having 750 employees and Group Three was made up of plants with more than 750 employees. Mounted silver shields, appropriately inscribed, were presented to the winners: Duchess Fabrics Corporation, Group One; Erwin Cotton Mills (Bleaching and Sewing Room), Group Two; Revolution Cotton Mills, Group Three.

The safety contest was endorsed by the association and resolutions were passed to make it an annual event. Other resolutions passed endorsed the two-way cent-a-bale cotton promotion program and the net-weight plan of selling cotton with its parallel cotton bagging plan, all being recently announced as part of the years' program of The Cotton-Textile Institute, Inc.; protested against and asked repeal of Section 14 of the 1936 Federal Revenue Act imposing a surtax on undistributed profits.

Herman Cone of Greensboro was elected president of the North Carolina association succeeding Harvey Moore of Charlotte. A. K. Winget of Albemarle was elected first vice-president, J. H. White, of Graham, second vice-president, and Hunter Marshall of Charlotte was re-elected as secretary-treasurer. The following new directors were elected, their terms expiring in 1938; Luther H. Hodges, Spray; R. L. Harris, Roxboro; W. H. Entwistle, Rockingham; R. M. Hanes, Winston-Salem; A. M. Dixon, Gastonia; and R. C. Moore, Asheboro.

Sugar Bags for Hawaii a Prospect for Increased Use of Cotton

Special to "Cotton" from Honolulu

INDICATING a trend toward closer and more beneficial co-operation between the various agricultural groups and areas in the United States is an experiment just started by the sugar farmers in the Territory of Hawaii, according to Ralph C. Elliott, associate marketing specialist for the U. S. Bureau of Agriculture Economics. If successful it will mean a new use for cotton grown in the southern states. Annually involving in Hawaii alone 10,000 bales it may develop into a project which will provide southern cotton farmers with an entirely new market for 50,000 bales a year, according to Department of Agriculture release

Shipping almost 1,000,000 tons of raw sugar from territorial mills to refining plants in California, the Hawaiian sugar industry uses 20,000,000 jute bags annually. All jute to make bags in the United States is necessarily imported, mostly from India. The experiment will determine the practicality of substituting cotton bags, costing approximately three times more per unit, for the present containers. The success of the experiment will depend upon whether the cotton bags are sufficiently satisfactory to justify their multiple use as compensation for their higher cost.

"The Hawaiian sugar industry", states Mr. Elliott, "voluntarily offered to and is co-operating to the fullest extent in an endeavor to aid a sister American industry, cotton growing. It is too early to make predictions regarding practical results but we can say our hopes have suffered no shocks to date".

The cotton bag in which to package raw sugar was designed by technologists of the Division of Cotton Marketing of the Department of Agriculture in conjunction with North Carolina State College in the division's search for new and more extensive uses for cotton. In laboratory tests cotton seemingly proved more durable than jute, cotton bags withstanding when filled with 100 pounds of raw sugar, 1,700 drops from a height of over five feet before bursting; the jute bags burst after 200 drops.

Ten thousand of the new cotton containers are being filled under the supervision of Mr. Elliott, a thousand each on 10 different sugar farms on the islands of Oahu, Maui, Kauai and Hawaii which will insure rigid tests under all climatic and loading conditions encountered in the Territory of Hawaii. Shipped to California the bags will be met and observed by R. J. Cheatham, senior cotton technologist for the Bureau of Agriculture Economics, as they are unloaded at the California and Hawaiian sugar refinery at Crockett. It is hoped the cotton bags will prove as economical as the jute containers by showing an ability to be washed, sterilized and used several times, thus compensating for their much higher initial cost.

Conference of Textile Deans

The fifth of a series of conferences sponsored by the Textile Foundation attended by the deans of the 12 textile schools in the United States, was held in New York City the latter part of October. In addition to the deans whose names follow, the conference was attended by Franklin W. Hobbs, chairman, and Frank D. Cheney of the board of directors of the Textile Foundation, F. M. Feiker, who presided at the conference meetings, and E. T. Pickard, secretary of the Foundation:

Chas. H. Eames, of Lowell Textile Institute; W. D. Fales, Rhode Island School of Design; George Walker, New Bedford Textile School; H. W. Nichols, Bradford Durfee Textile School, Fall River; Dr. E. W. France, Philadelphia Textile School; Dean Thomas Nelson, North Carolina State College; Dean H. H. Willis, Clemson College; Mr. C. A. Jones, Georgia School of Technology; E. W. Camp, Alabama Polytechnic Institute; J. B. Bagley, Texas Agricultural and Mechanical College; M. E. Heard, Texas Technological College; Dr. W. H. Dooley, Straubenmuller Textile High School.

A. H. Williams and M. E. Michl of the Wharton School, presented at one of the sessions a progress report on the work now being done in preparing text material for the teaching of textile economics.

In addition to the deans and officers of the Foundation those present were:

Claudius T. Murchison, president, The Cotton-Textile Institute; Arthur Besse, president, National Association of Wool Manufacturers; W. Ray Bell, president, Association Cotton Textile Merchants; F. E. Simmons, Underwear Institute; Earl Constantine, managing director, National Association Hosiery Manufacturers; Charles Whitney Dall, director, National Rayon Weavers Association; F. S. Blanchard, Pacific Mills; Albert L. Scott, president, National Association of Finishers of Cotton Fabrics; Stanley B. Hunt, Textile Economics Bureau, Inc.; Louis W. Fairchild, Fairchild Publications; Douglas G. Woolf, editor *Textile World*; A. F. Allison, managing director, International Association of Garment Manufacturers; Ernest C. Morse, msanging director, Associated Wool Industries; Russell T. Fisher, president, National Association of Cotton Manufacturers; L. A. Olney, Lowell Textile Institute; Theodore Haywood, Philadelphia.

Each of the guests made a 3-minute talk making observations and suggestions, and offering the deans fullest cooperation of themselves and their trade groups in the effort to adapt textile education to better meet the needs of modern industry.

One afternoon the deans visited the Straubenmuller Textile High School, and under the guidance of the principal, Wm. H. Dooley, studied the remarkable equipment and the work that is being carried on in that institution.

At other sessions very helpful discussions were led by F. S. Blanchard, chairman of the economic research committee of the U. S. Institute for Textile Research, on the subject of The Organization of Production and Distribution in Textile Industries—a Study of Trends; and, M. D. C. Crawford of the Fairchild Publications on the subject of Style and Design.

Exhibit of Cottons in Smithsonian Institution

Representative of the products of one of the country's greatest industries, an exhibit of new fall cottons has been installed recently in the Smithsonian Institution at Washington, D. C., by the Cotton-Textile Institute. Illustrating as it does the wide range of constructions, textures and colors as well as the fashion appeal of cotton fabrics, the exhibit of the Institute is a seasonal feature which attracts much attention from the thousands of tourists and others who visit the museum annually.

Dietze with Farr Alpaca

Walter H. Dietze, formerly of Stehli & Company, Inc., has joined forces with Farr Alpaca, which for more than a century has operated extensively in the cotton and woolen field and more recently in rayons, and which now is extending its activities into the uptown market where it will sell finished rayons, acetates, spun rayons, and wools, through its own sales office, to cutters and retail buyers.

CURRENT TEXTILE TOPICS ....

Talk of the Month

EXTRAORDINARY fall business in cotton goods has pointed out two conditions in distribution circles. The first years of recovery were a period of continued cautious buying, with consumer purchasing power only gradually expanding. Since last spring there has been a notable surge upward of purchasing power and still the inventories of wholesale and retail merchants were sub-normal. The evidence of a returning normal rate of purchases began to grow, but distributors were too late to cover adequately.

Reconstruction brings big sales and also new conditions to face

Thus they came into the current holiday merchandising period with an actual serious scarcity in a number of directions. It is believed that the Christmas holiday business in cotton merchandise as well as other products will be the best for six years and probably longer. Wholesalers began at mid-summer to prepare for the rush. The trouble is that producers were soon sold to capacity and could only take further orders for deliveries months ahead, leaving buyers clamoring for impossible nearby shipments and inventories not gaining as fast as retail sales.

Mill men and distributors, however, have not concentrated on business for the current season and a holiday peak. They have assurances that reconstruction is under way in full blast, with volume of business in 1937 figured by some economists to run 10 per cent above that in 1936 and about 18 per cent over the total for 1935. That caused continued pressure of demand to restore normal reserve stocks and to take care of buying at the higher level.

Suggestive of the general picture, the Standard Statistics Company states that "basic factors, such as the trend of commodity prices and purchasing power, should continue favorable in 1937." Its report adds that large deficiencies still exist in the durable goods industries. The capital goods group is likely to show the greatest relative betterment next year, but this gain itself means spread of employment and earnings that will rebound to the benefit of the consumer goods producers.

Sharing in the prevailing upward progress in all directions, the cotton industry had sold by late October more of its January-March 1937 production than orders for the same period of 1936 at the start of the year. It was estimated at the same time that domestic cotton mills were running about 18 to 20 per cent above the average of the years 1922-1927. The outlook has appeared so glowing that unusually heavy buying has continued to the point where forward buying is the best since the post-war boom.

This situation was not only encouraging, but a warning. The cotton industry has had its periods of big sales without profit. A recovery always has brought pressure for wage advances and this one proved no exception. This one, moreover, is concerned with several new circumstances which demand a careful and uniform program among cotton manufacturers to insure the well being of the industry.

A Consistent Price Rise

Prices of goods rose consistently through the fall, making progress out of unreasonably low levels at the start. It was early recognized, however, that many elements of higher cost are confronted in the new year. The new mandate given the present Administration has strengthened its position as to legislation concerning industry and producers are faced with the need of acting concertedly to steer a wise course.

Talk of possible action toward restoration of NRA principles only makes it the more essential that the industry work voluntarily for reasonable regulation of output when the temptation may be strong to lengthen out schedules. Incipient cases of resort to two shifts of 45 hours in the fall were deprecated by the great majority of manufacturers. It is inconceivable that such a move should spread, with the manifest danger of forcing the legislative control issue again and in any event with inevitable unfavorable market consequences.

Buyers are on the defensive. The result is that they are buying not one, two or three months ahead, but some industrial users of cotton goods are said even to have taken small lots for as late as September. Consumers would be prompt to realize their advantage from any extension of the 40-hour, two-shift operations of mills. That would be a quick boomerang.

Such action, furthermore, would be bucking against the tide of world progress. The textile industry, spreading over the world as a consequence of its catering to one of the three prime human essentials, is probably the most intensely internationally competitive of industries. The enthusiastic response from the International Labor Organization to the invitation of President Roosevelt for a conference next spring on the 40-hour week, working conditions and customs problems of the world textile industry is significant. In the past generation textile manufacture has grown from one of local problems to those of national and world-wide importance.

Arrangements have been made for a conference between American and Japanese textile leaders. The meeting will be held in January, in Japan. This conference is called to deal with a sore spot in cotton trade. It is hoped that private interests can effect a "gentlemen's agreement" whereby this country may offer some advantages in non-competitive products of Japan for relief from the serious competition

of Nipponese textiles in the markets here.

Among the recent constructive activities of the domestic industry is the plan for a united promotion fund from the various branches of cotton shippers to the goods trade—the two-way cent-a-bale program. The Cotton-Textile Institute is fostering in this plan an extension of promotion beyond the valuable work that it already has led on the part of and with the support of the manufacturing industry alone.

New England Mill Situation

FIGURES on cotton consumption and reports from the leading producing centers reflect the continued notable improvement of conditions in the goods mills of the New England district. Since the tide turned distinctly in the spring, the cotton consumption in mills of New England has shown unbroken gain each month relative to the same time last year. The business of mills during the fall months bespeaks a continuation of such expansion far into next year.

Much attention has been given in the primary goods market to the relative activity and strength of fine and fancy cloths. This naturally is an indication of the movement of New England goods and is supported by reports from the mill districts of persistent heavy selling over many weeks. Many mills have made substantial sales to the end of March and some have contracts for later delivery.

Labor leaders were prompt to use the rising volume of business as a wedge for higher wages. Their first move, in October, caused dissent from manufacturers because prices even then were close in relation to costs, and mills saw new costs facing them on goods being sold for 1937 delivery.

November brought definite signs, however, of a wage movement that could not be denied. The national election was a sign for release of inflationary forces in all directions. The wave of wage increases soon led to voluntary action by leading wool manufacturers and similar steps by individual units in other branches indicated that the movement might be expected in textile plants generally.

In a recent issue the Boston News Bureau points out reasons for expectation of higher prices and profits by the mills here. The paper says that, "the industry seems to have been 'shaken down' by the recent process of scrapping and obsolescence of machinery to the point where additional spinning capacity cannot be quickly brought into use. From the point of view of active spindles, the industry's manufacturing capacity is at its lowest point since 1905."

The same observer warns that the activity of spindles in use can be varied widely and that the trend is one to be watched closely, "lest there be over-production of goods". Meantime, New England spindles have reached the highest rate for over 13 years and those surviving the long years of liquidation "are running at much the highest rate in history, with the possible exception of war-time".

Sentiment against expanding operations beyond the sound basis of the code schedules has remained strong in this district. Because of rumors to the contrary, President Colby of the big Pacific Mills of Lawrence had posted a notice which included the following statement: "Shortly after the termination of NRA, the textile industry put itself on record as in favor of the continuance of working conditions as set up under the act and this, in particular, included work hours per week. This has been very generally adhered to by all mills with very few isolated exceptions, and I am confident that the industry has no thought of any change."

Following a vote by stockholders in the middle of October authorizing the re-opening of the Nashawena Mills of New Bedford, the directors some time later voted to take such action. The plant is on a reduced scale, but remains a unit of 72,000 spindles and 1250 looms. William B. Gardner, president, announced that the plant was being laid out to run entirely on cotton. At the same time, he said that the company might later enter the rayon field.

Among the encouraging textile signs was a recent petition by three Conencticut mills before the United States District Court at New Haven for permission to reorganize under Section 77B of the Federal Bankruptcy Act. Each petition said that added working capital was needed. The three mills are the Assawaga Co., Inc., of Killingly, the Angus Park Manufacturing Company of Glastonbury, and the Airlie Mills, Inc., of Sprague.

Another interesting development, hanging fire at the time of writing, was negotiations by the Celanese Corporation of America for the great plants at Fall River of the American Printing Company and the American Linen Mills. This is not a cotton mill project, but would mean a new important textile project for the famous old print cloth center and employment for several thousands of skilled operatives.

Acadia at Methuen Closes

While domestic conditions are tremendously improved, the competition of Japanese goods remains disturbing to some mill units and the Acadia of Methuen, Mass., recently decided to close permanently. Among the factors was the circumstance that the concern had found it impossible to pay American wages and sell its goods against that of coolie manufacturers of the Orient. The Acadia is a 60,000-spindle mill which once employed over 1,000 workers.

The final chapter in the vicissitudes of the great Amoskeag Manufacturing Company was the recent vote for dissolution of the 110-year-old company at a meeting in Manchester, N. H. The transfer of the physical assets to the Amoskeag Industries, Inc., made further continuance of the company unnecessary.

Pacific Leases Four Amoskeag Plants

What is hailed as the outstanding development in the New England industry since the closing of the Amoskeag is the acquisition by lease of four of the Manchester group of mills by the Pacific Mills. This gives the Pacific a complete unit of 130,000 spindles and 1500 looms for the production of print cloths and means the restoration to activity of 25 per cent of the Amoskeag plant. The Pacific has bought another 1700 looms for installation in the newly acquired mills.

"THE SITUATION"—as Seen Across an Executive's Desk

November 21, 1936.

NOT LONG AGO I heard about a man with a terribly swollen jaw who rushed into the drug store and inquired where he might find a dentist. An accommodating loafer said, "You *may* find one right around the corner."

"My God, man," shrieked the sufferer", I'm not looking for prosperity; I'm looking for relief!"

And, it's that way with the cotton textile mills now. We seem to have found the so-called prosperity, but we may be candidates for relief soon, for regardless of what situation we face we find that each period has its problems and it is always just as hard to make those proverbial "two ends" meet.

Those of us who were privileged to hear Willard L. Thorp, chief economist for Dun & Bradstreet, in New York a few weeks ago, were struck by three points he brought out in his talk: that we are not yet certain our economic system will survive a series of economic depressions and therefore business men should guard with utmost caution against being caught again in any such experiences as of 1929; that prosperity problems are much more difficult than depression problems; that trade associations are needed more during the period of boom psychology than during periods of dull business, in order to keep that business healthy, "for the maintenance of health is much more difficult than the recovery from sickness."

These points are so well taken that each should be used as a heading for a bit of theme-song regarding conditions as we see them this month, across our desk.

While certain groups of our textile industry feel that they are definitely out of the woods, and are making a lot of pretty talk on the subject, other groups are operating on narrower margins of profit and are not yet quite sure that the last economic slump is behind them. Executives of these last named groups had thought to exercise caution, to build up somewhat of a surplus, renovate the depleted physical properties of their plant. They felt that their stockholders should get some small dividends and that these things should be done to help their mills or corporations survive the next depression which will come in its cycle. However, they have been turned aside in their expectations and have been literally "put on the spot" by a series of prosperity problems, direct reflections of boom phychology rampant! Prosperity problems, broken down, certainly seem more serious than any hard-times problems we had to cope with, and we wonder if, having survived depression, can we survive prosperity?

First and foremost of the Prosperity Problems is the wage adjustment now under way.

We may as well be perfectly frank about this matter. It affects everyone, and although the operative may feel that he deserves a raise, and we are sure he will enjoy spending it, he should look carefully into the question of where that raise is coming from and where it will go.

As near as we can figure it out, the situation came about in this way, two conditions developing almost co-incidentally:

The closing sessions of the UTW convention in the summer were devoted to plans for intensive organizing for the purpose of pushing through to success a 20 per cent wage increase drive. With 100 per cent increase in union dues, this money to be used solely for organization ammunition, and with an intense amount of enthusiasm fed by newspaper talk of new wealth in the textile industry, the campaign got under way the early part of October.

Simultaneously the small minority of textile plants which had cut code wages after the NRA was declared unconstitutional thought better of their actions and re-instated the original code wages with a resultant flare of publicity of "wage-raising" in the papers. Further, a few mills which found they had gotten on a profitable basis and realized that if they raised wages 5 to 10 per cent they might not have to pay as large a tax on their "undivided surplus" did raise them, with, also, a great parade of newspaper headlines on the action. The final result has been a national surge of wage-raising in cotton-textile plants.

Now, I would be the last person in the world to wish low wages on a textile operative, or to begrudge him a raise, but as a student of economics I wonder where all this raising is going to take us. (Right now, it looks very much as if some one was having to play bluff poker.) For, the cotton-textile plants throughout the South were found to be, in a majority of cases, in an extremely vulnerable position. Their books were carrying orders for several weeks ahead and even months ahead; delivery of these orders could not be jeopardized. On the other hand, in lots of cases these orders represented very narrow margins of profit. Some groups had a profit, such as, for instance, the print cloth group—which had a profit of around 7 cents per pound in their goods, the towel mills, which making a specialty product had a nice margin of profit—but on the other hand, in the sales yarn groups, both carded and combed, there was practically no real profit. Any additional cost in the manufacture of these goods might mean wiping out all profit altogether.

Despite this, however, and because all textile plants were being harassed on one side by anticipated demands for wage adjustments from the textile workers, and pressed on the other by local newspapers for wage adjustment stories, against the better judgment of many level-headed executives, textile plants throughout the South have almost all made some sort of wage adjustment, either in a straight 10 per cent increase; bonus in the form of vacations with pay; or assumption on the part of the mill of the employees' portion of the Social Security tax.

As a temporary result, there was a great deal of satisfaction on the part of the employees, and the unions, and a great deal of unrest in Worth Street. Some mercerizers who had already raised their prices on yarns withdrew from the market altogether; other types of goods were marked up to meet this increased manufacturing cost; buying slowed down until reaction was felt from the retailer as to the results of this move.

For, regardless of what increase is made in the manufacturing costs of goods, the consumer always pays. The price increases on consumer goods is sort of like "the music goes round and round and the consumer pays his money here."

And, while the Social Security legislation has been anticipated as a known factor in increased costs, beginning January 1, there are few who stop to consider that this act and its broad provisions for the old-age pensions and the unemployment fund increase the costs on some counts of yarn as much as 1 cent per pound—that 1 cent is added to the first asking price—it eventually gets to the customer who pays that 1 cent with interest—and perhaps in 1945 that same customer may get part of that 1 cent back in a pension portion.

There is reason for the general feeling of anxiety over the situation, for it takes time for every such economic move of far-reaching proportions to become adjusted and equitable. Should the consumer rebel at the necessary increase in retail prices the now easy flowing market would soon stagnate, the mills would curtail, perhaps close—and where would the operatives' increase be then?

The Importance of Associations

All of which brings us down to the third point in Mr. Thorp's talk. It is much better to live like the Chinese and pay the doctor for keeping us well, than to send for him only when we are in pain. In this way, textile associations are our doctors to keep our business healthy. I honestly believe every mill man should look around him, realize the real value of the textile associations with which he should, by the type of goods manufactured and by reason of his geographical location, be affiliated and "join up". These organizations give the cotton-textile mills far more in value received than can be counted in the small dues paid per spindle. I'm all for that better type of co-operation, this business-health insurance, and am instructing my book-keeper to mail checks in today to all the several associations which I should support and which I am honestly regretful to say I have not supported in the past few years.

The Windfall Tax Blanks

The windfall tax blanks finally were received by the mills, and after I shook the ice water off me, (doused on by an astonished stenographer when I fainted for the first time in my life), yelled "God's nightgown!" a couple of times, I reached for my telephone and called in the best auditor in the business and turned that worry over to him. Windfall tax is the right name—it is a tax which has turned out to be a windfall for all the CPAs in the business. And that is enough to say about that, except that the first crop of suits have already been filed in protest of payment of this gosh almighty tax!

Bon Voyage!

Just now I am looking over all the canned bon voyage messages that the Western Union has on tap —you know the system, choose a number and pay a quarter and message number xyz is delivered to the unsuspecting party—because I want to send a half dozen off to that committee which is planning to embark just before Christmas for Japan: Cason Callaway, Donald Comer, Harry Bailey, C. T. Murchison, Hervey Kent, and Robert W. Philip, secretary. These fellows should do something fine and big over there to help us on the import question. It is hoped that voluntary restriction in export business to the U. S. will be undertaken by the Japanese after the scheduled conferences, a series of informal meetings to form a gentlemen's agreement. As Dr. Murchison said in his talk before the American-Japanese Trade Council session in Chicago November 19:

"What today may be regarded as restriction is the necessary foundation for growth of trade and liberalization of policy in the future. A great industrial nation which is engaged in the process of assimilating itself to the world market will appraise the program which it sets for itself not according to the results of a single year or five years, but of a generation of a century. It will, therefore, advance constructively and gradually taking due account of all those social, political and economic factors in the knowledge ultimate success is a matter of adjustment and co-ordination and not of overthrow and conquest.

"Such a procedure is desirable in theory and inevitable in actuality. From the point of view of our subject, there is one fundamental fact which is unchanging and that is the unqualified sovereignty of each nation as regards access to its home market. It is this fundamental truth with its powerful emotional appeal which always tends to minimize the export side of international trade and magnify the import side. This paradoxical trait is inherent in all peoples and is rendered harmless by economic teaching only under circumstances which are favorable and unproductive of fear. It is, therefore, truly in the interest of trade promotion that I appeal opportunistically for what at the moment may be termed "restriction". But more important than the idea of restriction is the particular manner in which it is to be attained. *The procedure must be mutual and practical.* It should spring from understanding which reaches beyond the two governments concerned to the industries and peoples directly affected. Whatever arrangement is arrived at should be flexible in character, either through the medium of frequent renewals or through the operation of a permanent administrative commission composed jointly of representatives from both countries. The objective must be something more than the mere control of volume. Aggregate volume is less important than a carefully calculated distribution of volume over many commodity classifications. In the situation under review, it is likewise important that the matter of price, as far as imports are concerned, be not left entirely to competitive determination. When price differences on similar goods are as great as from 25 to 50 per cent, the effect upon the domestic price structure is out of proportion to the volume of trade, and even the Japanese exporter is the loser in that he could obtain a much higher price without destroying his volume."

Dr. Murchison's training in the Bureau of Commerce shows up in his splendid summary, as quoted. It may be a long road to travel, but under such guidance it is most probable that the Japanese import situation will be handled well, benefiting all concerned.

What the Southern Mills Are Doing

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It is understood that negotiations have been made to

As a temporary result, there was a great deal of satisfaction on the part of the employees, and the unions, and a great deal of unrest in Worth Street. Some mercerizers who had already raised their prices on yarns withdrew from the market altogether; other types of goods were marked up to meet this increased manufacturing cost; buying slowed down until reaction was felt from the retailer as to the results of this move.

For, regardless of what increase is made in the manufacturing costs of goods, the consumer always pays. The price increases on consumer goods is sort of like "the music goes round and round and the consumer pays his money here."

And, while the Social Security legislation has been anticipated as a known factor in increased costs, beginning January 1, there are few who stop to consider that this act and its broad provisions for the old-age pensions and the unemployment fund increase the costs on some counts of yarn as much as 1 cent per pound—that 1 cent is added to the first asking price—it eventually gets to the customer who pays that 1 cent with interest—and perhaps in 1945 that same customer may get part of that 1 cent back in a pension portion.

There is reason for the general feeling of anxiety over the situation, for it takes time for every such economic move of far-reaching proportions to become adjusted and equitable. Should the consumer rebel at the necessary increase in retail prices the now easy flowing market would soon stagnate, the mills would curtail, perhaps close—and where would the operatives' increase be then?

The Importance of Associations

All of which brings us down to the third point in Mr. Thorp's talk. It is much better to live like the Chinese and pay the doctor for keeping us well, than to send for him only when we are in pain. In this way, textile associations are our doctors to keep our business healthy. I honestly believe every mill man should look around him, realize the real value of the textile associations with which he should, by the type of goods manufactured and by reason of his geographical location, be affiliated and "join up". These organizations give the cotton-textile mills far more in value received than can be counted in the small dues paid per spindle. I'm all for that better type of co-operation, this business-health insurance, and am instructing my book-keeper to mail checks in today to all the several associations which I should support and which I am honestly regretful to say I have not supported in the past few years.

The Windfall Tax Blanks

The windfall tax blanks finally were received by the mills, and after I shook the ice water off me, (doused on by an astonished stenographer when I fainted for the first time in my life), yelled "God's nightgown!" a couple of times, I reached for my telephone and called in the best auditor in the business and turned that worry over to him. Windfall tax is the right name—it is a tax which has turned out to be a windfall for all the CPAs in the business. And that is enough to say about that, except that the first crop of suits have already been filed in protest of payment of this gosh almighty tax!

Bon Voyage!

Just now I am looking over all the canned bon voyage messages that the Western Union has on tap —you know the system, choose a number and pay a quarter and message number xyz is delivered to the unsuspecting party—because I want to send a half dozen off to that committee which is planning to embark just before Christmas for Japan: Cason Callaway, Donald Comer, Harry Bailey, C. T. Murchison, Hervey Kent, and Robert W. Philip, secretary. These fellows should do something fine and big over there to help us on the import question. It is hoped that voluntary restriction in export business to the U. S. will be undertaken by the Japanese after the scheduled conferences, a series of informal meetings to form a gentlemen's agreement. As Dr. Murchison said in his talk before the American-Japanese Trade Council session in Chicago November 19:

"What today may be regarded as restriction is the necessary foundation for growth of trade and liberalization of policy in the future. A great industrial nation which is engaged in the process of assimilating itself to the world market will appraise the program which it sets for itself not according to the results of a single year or five years, but of a generation of a century. It will, therefore, advance constructively and gradually taking due account of all those social, political and economic factors in the knowledge ultimate success is a matter of adjustment and co-ordination and not of overthrow and conquest.

"Such a procedure is desirable in theory and inevitable in actuality. From the point of view of our subject, there is one fundamental fact which is unchanging and that is the unqualified sovereignty of each nation as regards access to its home market. It is this fundamental truth with its powerful emotional appeal which always tends to minimize the export side of international trade and magnify the import side. This paradoxical trait is inherent in all peoples and is rendered harmless by economic teaching only under circumstances which are favorable and unproductive of fear. It is, therefore, truly in the interest of trade promotion that I appeal opportunistically for what at the moment may be termed "restriction". But more important than the idea of restriction is the particular manner in which it is to be attained. *The procedure must be mutual and practical.* It should spring from understanding which reaches beyond the two governments concerned to the industries and peoples directly affected. Whatever arrangement is arrived at should be flexible in character, either through the medium of frequent renewals or through the operation of a permanent administrative commission composed jointly of representatives from both countries. The objective must be something more than the mere control of volume. Aggregate volume is less important than a carefully calculated distribution of volume over many commodity classifications. In the situation under review, it is likewise important that the matter of price, as far as imports are concerned, be not left entirely to competitive determination. When price differences on similar goods are as great as from 25 to 50 per cent, the effect upon the domestic price structure is out of proportion to the volume of trade, and even the Japanese exporter is the loser in that he could obtain a much higher price without destroying his volume."

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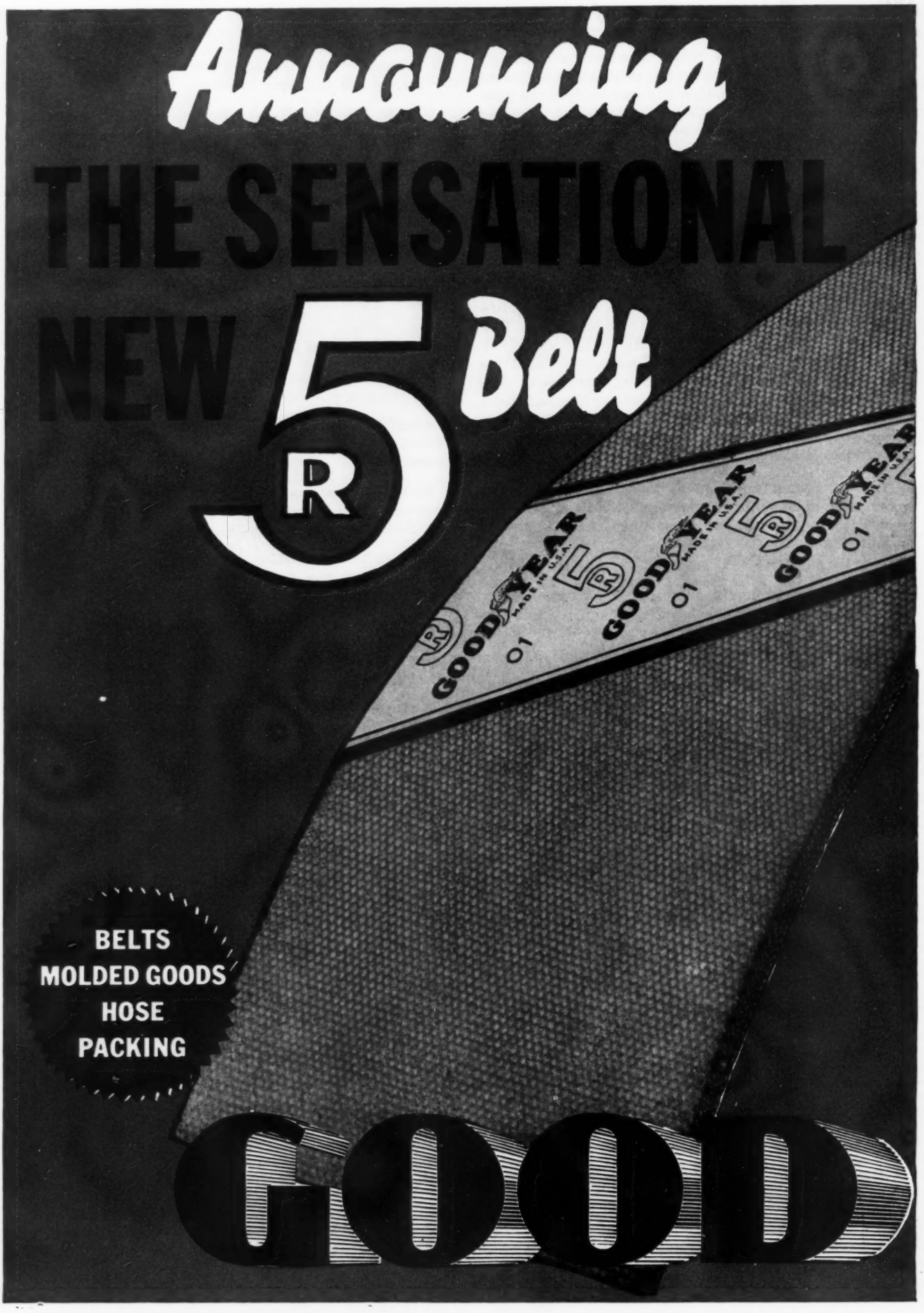

Announcing
THE SENSATIONAL
NEW 5R Belt
GOODYEAR
MADE IN U.S.A.
5R
01
BELTS
MOLDED GOODS
HOSE
PACKING
GOOD

The "R" of a belt is the ratio between tensions on the tight or "pulling" side and slack or "returning" side necessary to maintain the effective tension required to operate the drive—and depends upon the coefficient of friction between belt and pulley. For example, an ordinary belt with an "R" of 2 must be operated at 200 lbs. tight side tension and 100 lbs. slack side, or a total of 300 lbs., to deliver 100 lbs. effective tension. The new Goodyear 5-R Belt is so named because its higher coefficient of friction gives it a minimum "R" of 5. To maintain an effective tension of 100 lbs., it requires a tight side tension of only 125 lbs. and 25 lbs. slack side, or 150 lbs. total—reducing bearing pressure and insuring longer belt-life

Pulls heaviest loads at 25% to 50% lower tension without slip!

AFTER years of research Goodyear engineers present a revolutionary development in flat transmission belting—a square-edge fabric belt with a *permanent minimum ratio of tension*, or "R," of 5. Hence its name—the Goodyear 5-R.

What that means in terms of belt efficiency non-engineers will find explained in the adjoining diagram. Briefly, it handles any given load at 25% to 50% lower tension without slip and far less stretch!

Highest coefficient of friction

The secret of the 5-R's amazing slack-tension operation is a new Goodyear-perfected non-rosinous rubber compound impregnated through the fabric which gives it a coefficient of friction—a pulley grip—*unexcelled in any other type of belt!* As the surface wears, new friction is exposed with all the grip of a new belt—a surface that will not chatter or ball-up.

Months of service in typical operations have conclusively demonstrated 5-R's ability to reduce power transmission costs. Armored with a permanent, high coefficient of friction 5-R attacks cost on two fronts. **1.** *Lower tensions* in the belt itself, resulting in longer belt life and greater ability to hold fasteners. **2.** *Reduced bearing pressure*, resulting in longer bearing life, less lubrication problems, less frictional losses. It is now available in roll lots in all popular sizes and widths. The G. T. M.—Goodyear Technical Man—will be glad to give you full data on this unique new belt. To bring him to your plant, write Goodyear, Akron, Ohio, or Los Angeles, California—or the nearest Goodyear Mechanical Rubber Goods Distributor.

THE GREATEST NAME IN RUBBER

GOODYEAR

open the old C. H. Bacon Company hosiery mill located in Greeneville, Tenn. The plans are to equip the plant with full-fashioned hosiery machinery, giving employment to 100 persons.

Plans are being completed for a new hosiery mill to be located in Ashland, Va.

Contracts have been let for additions to the finishing department and offices of the Virginia Maid Hosiery Mills, Pulaski, Va. It is expected that about 35 additional employees will be taken on when the finishing department is completed.

A contract has been let for the construction of a $55,000 plant to house a new full-fashioned silk mill in Radford, Va. The mill will employe about 300 workers.

The Radford Manufacturing Company, Radford, Va., has been established in the building formerly occupied by Paul Knitting Mills, Inc.

Pee Dee Manufacturing Company, Rockingham, N. C., is having all of the machinery overhauled.

Fletcher Mills, Huntsville, Ala., have re-opened after being closed for a number of months.

Industrial Cotton Mills, Rock Hill, S. C., are building a new two-story addition to be used for a cloth room and storage place. Work is well under way.

Carolina Webbing Company, Greensboro, N. C., which began operations a short time ago, will install additional machinery shortly and a number of operatives will be employed.

Border & Beck Hosiery Mills, Kingsport, Tenn., will open a mill in Cranberry, N. C., as soon as the building selected is renovated and machinery is installed.

Sterling Knitting Mills, Inc., Hickory, N. C., recently was organized with a capital stock of $100,000.

City Cotton Mill, Newton, N. C., is constructing an addition to its plant which will add to its capacity greatly. New looms and spindles will also be added.

COMMENT ON THE COTTON MARKET

New Orleans, November 14, 1936

AS THE YEAR draws to a close, expansion in trade grows, fulfilling predictions that general business would be on its way soon and that the seven-year depression would, in all likelihood, pass into oblivion in the not far distant future. Serving to confirm reports of the better state of trade and of confidence in the future, there have been of late numerous announcements of general business being much better than for several years past, of usual and extra dividends being paid, and of wages being increased.

In a previous review, mention was made to the effect that "The outlook was so cheerful as to denote the possibility of a development something akin to a 'boom' in 1937." Already similar expressions have emanated from certain lines of industry, which is a good omen for the future.

Optimism has become more pronounced and general since the presidential election, which is reflected in the strength of securities, and the crystallizing of sentiment in a more concrete and cheerful nature. After the administration's program was approved by the people, the wheels of commerce and industry swung into greater operation, indicating that general business was on the highway to prosperity. In the different lines of domestic and international trade there developed the unfavorable feature of "strikes and threatened strikes", but such occurrences are usually the result of better times in which labor desires to share. Such disturbances are usually short lived and are likely to be amicably adjusted soon.

During the past month, there continued an active demand for spots, and there was some activity in trading in futures, and while the improved business reports served to help sustain the market, values were unfavorably affected by larger American crop prospects, apprehension lest the acreage be increased next spring, and by the outlook for a larger production of foreign growths this year. Compared with one month ago, spots and the December option show a decline of about $1.00 per bale, the later positions showing a loss of about 32 to 49 points, mostly in the more distant deliveries. That the trade apparently entertains ideas of the probability of a larger American acreage in 1937, and possibly keener competition from the expected larger foreign crop, is reflected in the discount in far deliveries, especially in the big discount at which the October, 1937, contract is quoted today—11.06.

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint, October	646,000	553,000
Consumption of lint, 3 months	1,851,000	1,412,000
Mill stocks, October 31st	1,403,000	1,078,000
Mill stocks, September 30th	849,000	723,000
Stocks in public storage and warehouses, October 31st	8,028,000	8,482,000
Stocks in mills, public storage and warehouses, October 31st	9,431,000	9,560,000
Stocks in mills, public storage and warehouses, September 30th	7,655,000	7,866,000
Active spindles during October	23,638,000	23,128,000
Active spindles during September	23,514,000	22,682,000
Consumption of lint in Cotton Growing States, 3 months	1,549,000	1,183,000
Consumption of lint in New England States 3 months	243,000	187,000
Consumption of lint in All Other States, 3 months	59,000	42,000

BRITISH BOARD OF TRADE REPORT FOR OCTOBER

Year—	1936	1935	1934
Exports of yarn, pounds	13,000,000	13,000,000	11,000,000
Exports of cloth, yards	178,000,000	161,000,000	176,000,000

AMERICAN COTTON

August 1 to November 13— Bales—	This season	Last season
Marketed (brought into sight)	8,043,000	7,468,000
Exports from the United States	1,946,000	1,959,000
Spinners' takings, world	4,269,000	3,903,000
Total stock at all U. S. ports Nov. 13th	2,887,000	2,970,000

WORLD'S VISIBLE SUPPLY OF COTTON

November 13— Bales—	This year	Last year
American	7,190,000	7,069,000
Other kinds	1,846,000	1,259,000
All kinds	9,036,000	8,328 000

SEASON'S PRESENT INDICATED SUPPLY OF AMERICAN

Bales—	This season	Last season
World's carry-over, Aug. 1, N. O. Cotton Ex.	6,732,000	8,728,000
Indicated crop Nov. 1, government forecast	12,400,000	10,638,000 final
Indicated season's supply	19,132,000	19,366,000
World's consumption, N. O. Cotton Ex.	(?)	12,405,000

SEASON'S PRESENT INDICATED SUPPLY OF FOREIGN

Bales of 500 pounds—	This season	Last season
World's carry-over, Aug. 1, N. Y. Cot. Ex. Svc.	6,111,000	5,534,000
Indicated crop, Volkart Bros. est.	18,000,000	15,750,000
Indicated season's supply	24,111,000	21,284,000
World's consumption, N. Y. Cot. Ex. Svc.	(?)	15,190,000

WORLD'S PRESENT INDICATED SUPPLY OF ALL KINDS

Estimated— Bales—	This season	Last season
World's carry-over, August 1st	12,843,000	14,262,000
Indicated crop	30,400,000	26,388,000
Season's indicated supply	43,243,000	40,650,000
World's consumption	(?)	27,595,000

According to late press advices, Secretary of Agriculture, Wallace was quoted as saying to effect—"That crop insurance rather than crop control would be sought through Congress." These remarks were construed by some people as probably meaning that the government probably would not take early action to support commodities in which there has been large production this year. In respect to this year's production of American cotton, indications, as per returns to the government as of November 1, pointed to a yield of 12,400,000 bales, whereas the outlook on October 1st, was for a crop of 11,609,000 bales, and the forecast on September 1 was for only 11,121,000 bales. Last year's American crop was 10,638,000 bales.

It is evident that while it is possible for cotton values to rule comparatively steady in the face of the expected larger American and foreign cotton crops, perhaps ease further for reasons mentioned above, such a development would hardly hinder the recovery being made in general business, as trade expansion would likely be benefited rather than curtailed by a possible decline in the value of a raw commodity, such as cotton. When trade is active, as it is now in the cotton textile and other manufacturing lines, the price of a raw material, whether a little higher or a little lower, does not matter much. Public spending is the one thing necessary to maintain good trade; it is prevalent now and will likely increase and become more widespread as the holiday season approaches.

IN FANCY GOODS AND COMBED BROADCLOTH MILLS

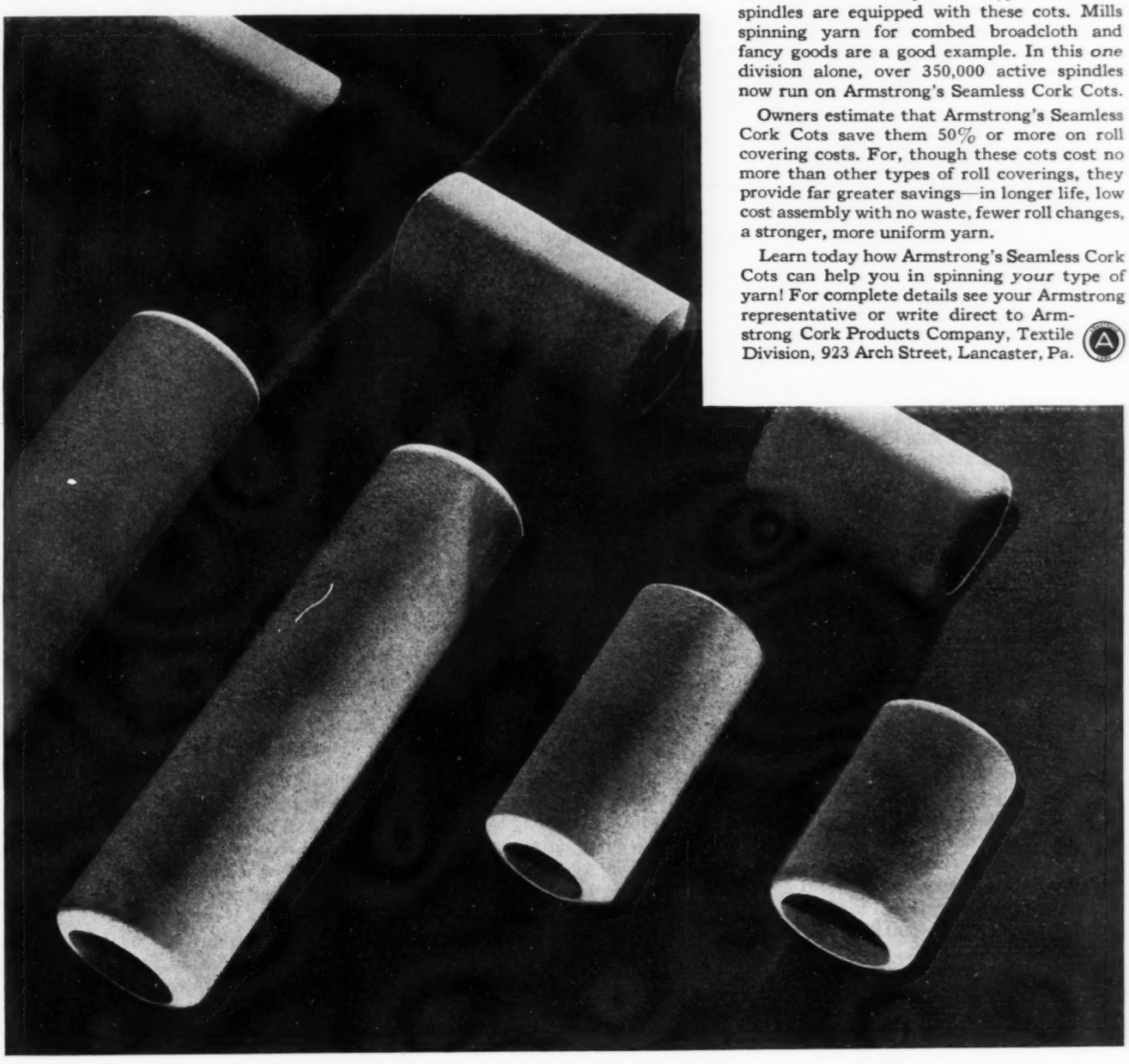
352,464 ACTIVE SPINDLES

ARE ON ARMSTRONG'S CORK COTS

MILLS in all classifications of the textile industry enjoy greater benefits from Armstrong's Seamless Cork Cots. Evidence of this is the fact that today over 25% of all active spindles are equipped with these cots. Mills spinning yarn for combed broadcloth and fancy goods are a good example. In this *one* division alone, over 350,000 active spindles now run on Armstrong's Seamless Cork Cots.

Owners estimate that Armstrong's Seamless Cork Cots save them 50% or more on roll covering costs. For, though these cots cost no more than other types of roll coverings, they provide far greater savings—in longer life, low cost assembly with no waste, fewer roll changes, a stronger, more uniform yarn.

Learn today how Armstrong's Seamless Cork Cots can help you in spinning *your* type of yarn! For complete details see your Armstrong representative or write direct to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pa.



FOR SPINNING AND CARDROOM ROLLS

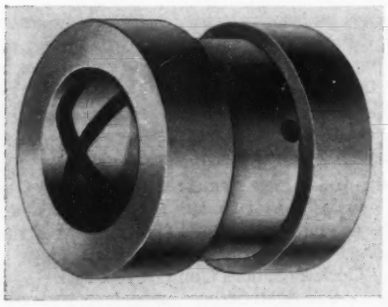
ARMSTRONG'S EXTRA CUSHION SEAMLESS CORK COTS

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

Oil Reservoir Bushings by Randall Corporation

Randall Graphite Products Corporation, 609-613 W. Lake St., Chicago, Ill., have announced 4 types of oil reservoir graphite bronze bushings which supply automatic lubrication control by feeding lubricant from the reservoir through graphite plugs which regulate the rate of flow. Additional positive lubrication is supplied by graphite in machined grooves on the bearing surfaces. All of these bushings may be reamed, broached or diamond bored after installation without damaging the graphite. Neither oil nor water will wash out the graphite or cause it to recede below the surface.



Oil reservoir bushing . . .

Davison's "Knit Goods Trade"

Davison Publishing Company, 50 Union Square, New York City, has released the 46th annual edition of the standard "Knit Goods Trade," a directory of mills, agents, jobbers, retail dealers, throwing companies, and other concerns allied with the knit goods trade. The book contains 737 pages and may be had in either the cloth-back or reinforced-back. The price of the former is $5.00 and the latter $6.00. The directory carries the listings of companies in both the United States and Canada.

"Jute and Its Substitutes"

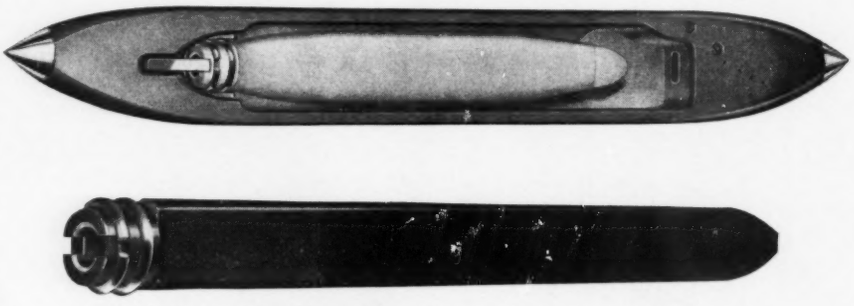
Chemical Publishing Company of New York, Inc., 148 Lafayette St., New York City, has published a new book, *Jute and Its Substitutes*, which is a complete treatise on the cultivation, manufacture and trade in jute and jute substitutes, showing the manner of their treatment and the purposes for which they can be used. The author is N. C. Chaudhury, late of the provincial agricultural services of Bengal, Bihar, and Orissa, India. The book is well illustrated; price, $6.00.

Rockwood Pivoted Motor Bases

The Rockwood Manufacturing Company, Indianapolis, Ind., has announced the v-belt drives on pivoted motor bases which are said to improve v-belt performance by maintaining constant tension in the belts. With these drives, the tension is removed from the belts when the drive is not running, which permits the belts to rest. It is a simple matter to raise the present motor, slide the base into place, bolt the base to the floor, and then bolt the motor to the base.

New Flat Bobbins and Shuttles

The U. S. Bobbin & Shuttle Company, Lawrence, Mass., is offering to the trade a flat bobbin and shuttle for weaving silk and rayon. The flat bobbin, which takes a considerably larger package than a round bobbin, is supplied with a velvet finish or enameled finish for conditioning. The new flat shuttle, which is of a size and construction to carry the flat bobbin most efficiently, is equipped with the Paterson tension or the unit tension for shuttle-changing looms. The unit tension mechanism can be adjusted to any tension desired and eliminates the use of mops, felts and elastics. It gives positive tension on the first pick and every pick in plain, box or shuttle-changing looms. It is available in dogwood or fiber-clad and in both right- and left-hand shuttles.



Flat shuttle and bobbin which takes a larger package . . .

Ruggedwear Resurfacer

Flexrock Company, 800 North Delaware Ave., Philadelphia, Pa., have released literature on industrial floor maintenance describing the use of their product, Ruggedwear Resurfacer. This product is said to have a low cost, long service, and is efficient; it is used in the repair of floors.

Automatic Two-Filament Lamp

Double-Life Lamp Company, Hoboken, N. J., has announced the successful development of an automatic two-filament lamp which, it is stated, has a life of 2,000 hours. Under conditions where sockets are not easily accessible, the importance of the new discovery may be realized. The breaking of the first filament in the double-life lamp is, in effect, a warning signal, informing the observer that a half-way point has been reached. Inside the ordinary glass chamber are two filaments instead of one. The new departure in construction is an automatic switch which changes the current to the second filament when the first burns out. Paul Schwerin developed this bulb.

"Electric Machinery Catechism"

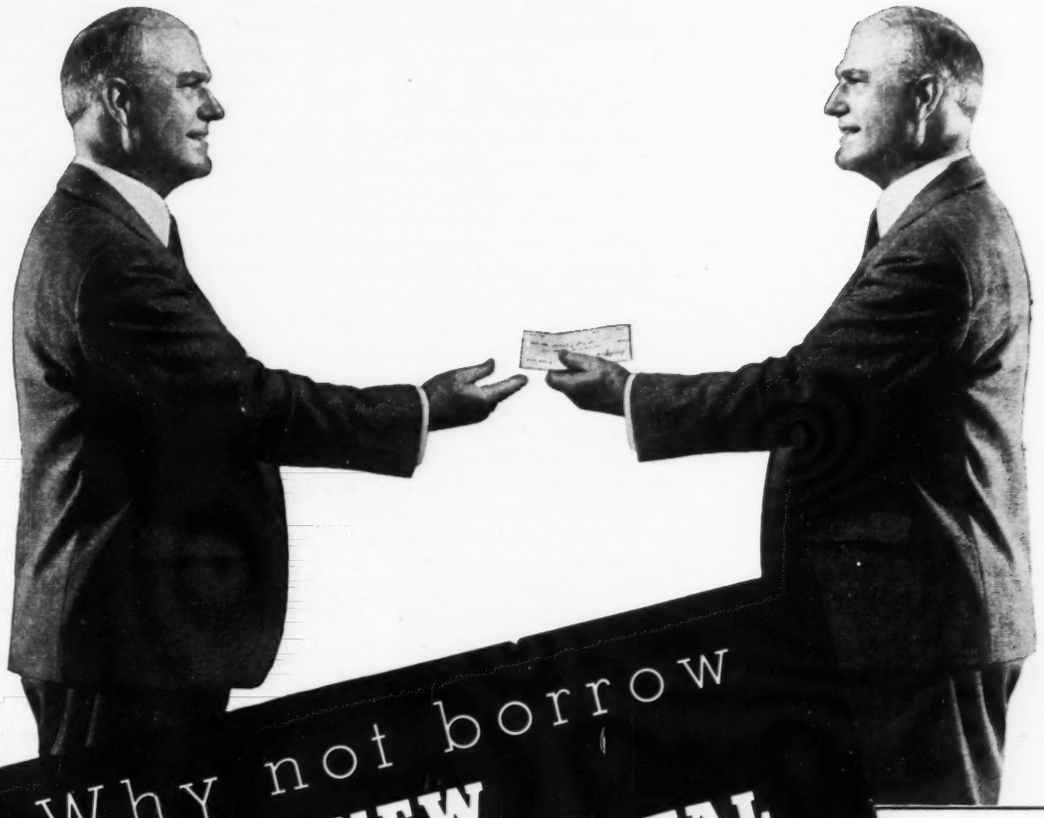
Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill., have published *Electric Machinery Catechism*, a 48-page booklet designed to answer those questions that are likely to arise in the minds of persons using electrical equipment and who do not have an extensive formal knowledge of electrical phenomena or terminology. Included are over 100 drawings, photographs and sectional views that show the design of simple machines, the flow and characteristics of electricity, the operation of electrical apparatus, wiring diagrams, etc.

Bulletin by Foxboro

The Foxboro Company, Foxboro, Mass., makers of valves for air-operated controllers have published bulletin No. 214, which provides a comprehensive review of controlled valves of both the throttling and quick-acting type, as well as the modern controller accessories for extending the practical application of automatic control.

Booklet by Elgin Corporation

Elgin Softener Corporation, Elgin, Ill., have distributed a 16-page booklet entitled *The Inside Story of Boiler Water Conditioning* which tells the story of what steam leaves in the boil-



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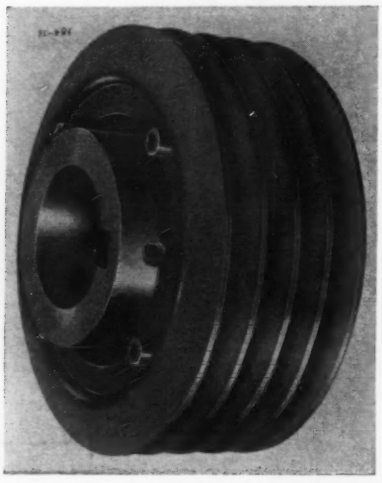
TWO PARK AVENUE, NEW YORK

er, and what occurs under certain conditions. The booklet takes all the mystery out of boiler-water treatment by a clear, non-technical discussion of all the various methods.

Demountable Rim Sheave

Dodge Manufacturing Corporation, Mishawaka, Ind., engineers and manufacturers, have designed and built a demountable rim type sheave not heretofore found in the regular stock sheaves for v-belt drives. The "DR" sheave consists of a hub on which can



Demountable rim sheave . . .

be mounted rims of varying diameters and number of grooves. The rims can be mounted in 4 different positions so that the hub can be approximately central or have varying amounts of offset as required. These features make this sheave particularly suitable for installations requiring occasional speed or horsepower variations. The hub is mounted permanently on the motor, engine or machine shaft and the rims can be changed as often as required. A new bulletin, No. A-208 is now available which gives complete information sizes, and prices.

"A.S.T.M. Standards on Textile Materials" Released

The American Society for Testing Materials, 260 South Broad St., Philadelphia, Pa., has issued the 1936 edition of the compilation of "A. S. T. M. Standards on Textile Materials." In addition to all A. S. T. M. standards on textiles, there are included a proposed potassium dichromate oxidation method for the determination of total iron in asbestos textiles, and a psychrometric table for relative humidity which combines both accuracy and convenience to an exceptional degree. During the past year, 9 outstanding technical papers were presented at meetings of the committee (D-13) and extensive abstracts of these papers are given in the publication. Copies of this 275-page publication can be obtained from A. S. T. M. headquarters. The price is $2.00.

Brochure by Allis-Chalmers

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has prepared a new revised 28-page brochure covering the construction and numerous uses of their modern coupled and engine-type synchronous motors that may now be obtained with torque characteristics suitable for practically any drive, 50 hp. or over, where the squirrel cage induction motor could be used. The brochure deals with the increasing usage of this type of motor due to its uniform high efficiency, at fractional as well as at full loads, and at all speeds, together with its all-important function of power factor correction. It is well illustrated throughout.

New Buckeye Oil Mill Catalog

Buckeye Iron & Brass Works, Dayton, O., have issued a catalog descriptive of their oil mill machinery. Specifications are complete and it is thoroughly illustrated.

Spring Silk Colors

Textile Color Card Association has released its spring silk color card to members of the association. The managing director of the association described the shades as being pastel and medium register, adaptable alike for sports or evening wear. The tones, which tune smartly with the new fashion movement for spring are, melody pink, dancing green, dream rose, swing blue, tango orange, and others.

New System of Complete Process Control by Bristol Company

The Bristol Company, Waterbury, Conn., has developed a new system known as the co-ordinated control system for automatically operating all of the technical operations and factors of an industrial process. This system is said to make it possible to put even the most intricate scientific process under complete automatic control, thus eliminating the necessity of leaving the manipulation and control of critical operations in the hands of plant operatives. The co-ordinated control system can be applied to any process of which the exact schedule of operation for best over-all results is known. Bulletin 460-T describes this system.

Industrial Posture Chair

Harter Corporation, Sturgis, Mich., has announced a new type of steel chair for factory workers which is of the "posture" type, lately claiming the attention of the industry in general. Its designers claim that by eliminating stooping and slumping on the part of seated workers, both efficiency and output are increased. The Harter chair is entirely of steel, except seat and back which are of 5-ply veneer wood, form fitting. It may be adjusted to fit any individual quickly and easily without the use of screwdriver or wrench. It is made in 3 sizes with maximum seat heights from floor of 22 inches, 28 inches, and 34 inches respectively.

Republic Steel Literature

Republic Steel Corporation, Cleveland, O., is distributing literature in several booklets describing and illustrating its heat-resisting steels, stainless steels, and other types of steels in their many forms and diversified manner of application. The booklets bring out that alloys of the type produced by Republic have become widely recognized in this country within recent years and have a commercial value far-reaching in effect upon modern industry.

Bulletin by Carrier

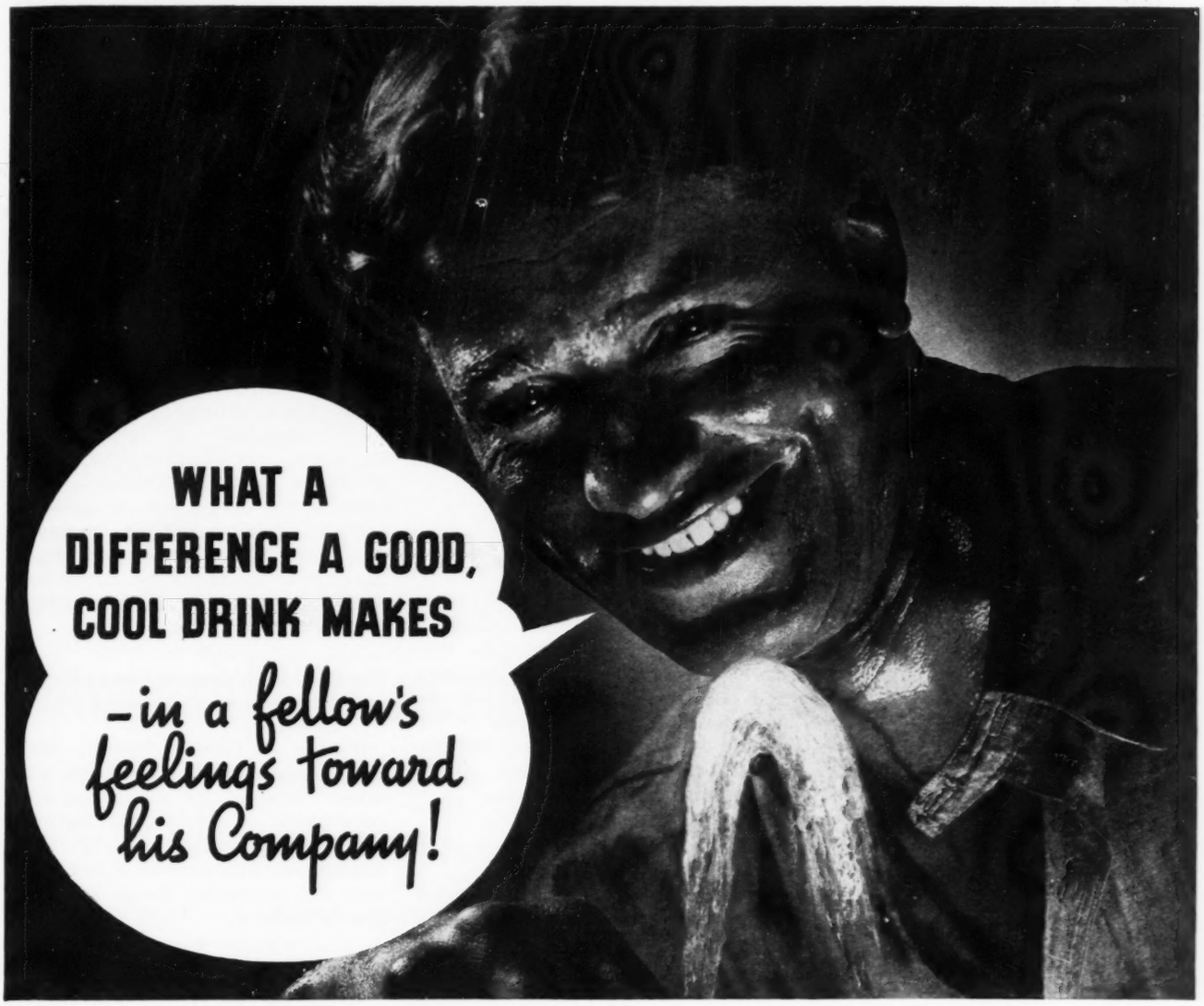
Carrier Corporation, 850 Frelinghuysen Ave., Newark, N. J., has made available a new bulletin describing its complete equipment for industry, business, and the home. Capacities, ratings, and diagrams are included to indicate the wide variety of units and central plants that are present in this 25th year of the air-conditioning art.

Condor Compensated Belt in Two New Styles

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., makers of mechanical rubber goods, recently developed two new styles of Condor compensated belt known as style "F" and style "B". Both have the patented Condor compensated principle of equalized ply stresses at the arc of contact, but are especially designed for those unusual conditions which require some slip rather than the extremely high coefficient of friction for low-tension operation present in the regular Condor belt.

Booklet on Variable Speed Control

Reeves Pulley Company, Columbus, Ind., has issued an attractive booklet entitled *Speed Control at Work*. It is a brief inspection, both by word and illustration, of the methods employed by 12 nationally-known manufacturers in securing complete speed adjustability of production machines in their plants. In addition, this booklet illustrates and describes the 3 basic units in the complete line of Reeves speed control equipment and a number of different designs and controls available in this line.



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● No investment you can make in plant modernization will pay bigger dividends than Frigidaire Water Cooling Equipment. In goodwill alone it more than justifies its cost.

But it offers many other advantages as well. It means greater efficiency in every department—more production, fewer mistakes and accidents. It also means a tremendous saving in dollar and cents over old-style methods. A saving so great that Frigidaire actually pays for itself in a short time and continues to earn a big investment return for years to come.

When we say "pays for itself" we mean just that. And we're ready to *prove* it to *you* by a FREE survey and estimate in your own plant.

It will pay you to get complete details. Find out how little it costs you and how much it saves you to have cool, sparkling water throughout your factory. There is Frigidaire Water Cooling Equipment for every need. Efficient, dependable, economical.

Investigate at once, and include Frigidaire equipment in your 1937 budget. For free survey and estimate see your nearest Frigidaire Commercial dealer or drop a line to FRIGIDAIRE DIVISION, General Motors Sales Corporation, Dept. 77-12, Dayton, Ohio.

FRIGIDAIRE
MADE ONLY BY GENERAL MOTORS

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Addition to Line of Dyes

National Aniline & Chemical Company, Inc., 40 Rector St., New York, N. Y., has announced National Alizarine Fast Blue RB as an addition to their line of dyes. This color may be dyed with Glauber's salt and acetic acid, exhausting with sulfuric acid, or with sulfuric acid only; it also dyes well in a neutral bath containing Glauber's salt only. It is greener and brighter than National Alizarine Blue GRL and slightly faster to light.

Bulletin by Terrell

The Terrell Machine Company, Inc., Charlotte, N. C., makers of bobbins, spools, skewers, scavenger rolls, top clearer boards, loom binders, lease rods, and other wood specialties, has distributed a bulletin extending greetings to its friends in the textile industry and giving some pertinent facts of the operating organization of the Terrell company. Also included are illustrations of the type bobbins and supplies made and tables showing the standard sizes of roving bobbins.

New Series of pH Instruments

Wilkens-Anderson Company, 111 N. Canal St., Chicago, Ill., makers of pH control instruments for plant and laboratory use, have announced a new series of Coleman pH electrometers. Push-button testing with the compact, portable set is said to make the control of acidity and alkalinity a plant operation handled by the foreman, if desired. The readings may be made at the vat through use of the glass electrode which is sealed and prepared. The new electrometers also use smaller samples, the electrode being of heavier glass, and one control being eliminated entirely. The direct reading Coleman is described in the *Waco-Catalyst*, house organ of the Wilkens-Anderson Company.

Annual Cotton Handbook

Comtelburo, Limited, 66-70 Beaver St., New York City, has recently published the *Annual Cotton Handbook* which contains statistics on the American, European, and Brazilian cotton crops. This is the 66th edition. This book carries data on all growth of cotton for which figures are obtainable, in addition to the receipts, exports, spinners' takings, etc., issued by the American and Liverpool cotton exchanges. A new feature of the 66th edition is the tables showing the imports of Indian cotton into Liverpool and Manchester. Another table is included shows the highest and lowest futures prices for "American and other Growths". The price of the *Annual Cotton Handbook* is $1.00.

Gattshall Manages Republic in Atlanta

The Republic Rubber Company, Youngstown, O., announced the appointment of R. M. Gattshall as manager of distributor sales, with offices

Mr. Gattshall

at 24 Standish Ave., Atlanta, Ga. Formerly Mr. Gattshall was advertising and sales promotion manager for the company. He will concentrate on the states of South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Louisiana, and Arkansas.

Fechheimer Joins Staff of Louis Allis

C. J. Fechheimer, who for many years has been closely connected with the electrical manufacturing industry as designing engineer and as research engineer, has joined the engineering staff of The Louis Allis Company, Milwaukee, Wis., makers of direct and alternating current motors. Mr. Fechheimer is nationally known as an author and lecturer on both mechanical subjects and electrical subjects, and has contributed substantially in inventions to the electrical industry. For the past 5 years he has been engaged as a consultant in private practice and recently was appointed as director of the college at the Milwaukee School of Engineering.

Express Traffic Agents Made District Sales Managers

Railway Express Agency, carrying forward its new sales policy in the development of express traffic, has announced the appointment of a number of district sales managers located at key points throughout the country. These managers will co-ordinate their business-getting activities with those of the general sales department in New York, which was created the first of October. The new appointees are the traffic agents assigned to the general manager's staff in the operating departments of the express organization. They have been vital factors in the agency's more-business plan, the success of which led to the establishment of the new sales department.

Robert Reiner Distributor of Imported Knitting Machines

Robert Reiner, president, Robert Reiner, Inc., Weehawken, N. J., importer of Einsiedel-Reiner full-fashioned hosiery machines and other textile machinery, has been appointed sole distributor in the United States for Emil Wirth High-Speed Milanese & Locknit (Tricot) knitting machines and Schlick high-speed sectional beaming machine and creel. Dr. Reiner has recently returned from an extended trip abroad.

Gordon Heads Engineering and Development of Atwood Company

William R. Gordon, formerly with the General Motors Corporation, has taken charge of the engineering and development of the Atwood Machine Company, Stonington, Conn. Mr. Gordon has had wide experience and is an authority on modern design and production methods.

Gorman in Charge of Sales for Signode Steel Company

J. S. Gorman, who for 5 years has been directing the sales of the Signode Steel Strapping Company, 2600 N. Western Ave., Chicago, Ill., has been elected vice-president in charge of sales for the company. The Signode company makes tensional steel strapping for the protection and reinforcement of containers of all kinds and heavy duty strapping for bracing carload shipments.

Changes in Republic Steel Organization

Republic Steel Corporation, Cleveland, O., has announced several changes in the department of Steel and Tubes, Inc., a subsidiary of Republic Steel Corporation. Lee M. Hogan, former manager of advertising and sales promotion, has been named district sales manager of the New York district; Irving Whitehouse, former assistant manager, has been made manager of sales promotion. A. R. Smith, who has been superintendent of the Elyria division of Steel and Tubes, Inc., has been promoted to general manager of that division.

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Your customers will get their goods, Christmas rush or regular, quickly and dependably by Railway Express. It's the economy and profit route. Rates are economical and in all cities and principal towns Railway Express picks up and delivers shipments promptly, door-to-door, without extra charge. They go forward at express train speed. No delays or detours and for extra-special speed and last-minute shipments there's Air Express—2500 miles overnight at low cost, too. Charges include insurance on all packages, and signed receipts at pick-up and delivery check each shipment. Through Railway Express's 23,000 nation-wide offices you can reach practically any customer in America and save literally days on deliveries.

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NATION-WIDE RAIL-AIR SERVICE

Social Security
Makes Accurate
Payroll Records

Imperative!

WHEN you deduct a percentage of every employee's salary every week, it's essential to have records that show what you did.

Will you have a signed receipt for every penny you pay out—every penny you deduct under the Social Security Act? Will you have the records you need if questions come up a year from now?

Here is the way to do it--

Use the payroll envelope that combines a wage statement, a deduction statement, an employee receipt —use the 4-in-1 Pay Envelope.

The 4-in-1 **won't** increase bookkeeping costs — in many plants it has actually reduced the cost of making up payrolls by 32%—it **will** give you absolute assurance that you and your employees are protected with exact records of Social Security deductions.

Hundreds of concerns have adopted this simple, safe answer to the problem. It works for them, saving time, money and trouble. **It will work for you.**

And remember that the 4-in-1 can be made up just as you want it, printed exactly like your payroll sheet. Write us, outlining your requirements and let us send you, without obligation, our recommendations. Orders placed now can be delivered by January 1st.

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Officers of Southern Combed Yarn Spinner's Association

Marking the beginning of the 14th year that the Southern Combed Yarn Spinner's Association will have been in existence, the annual meeting was well attended and representatives of over a million spindles were present. Interesting discussions of the present trends of business were heard from those recently returned from the market, both in the East and the Mid-West. The following officers were elected: president, R. Dave Hall, secretary and assistant-treasurer, Stowe Thread Company, Belmont, N. C.; first vice-president, R. B. Suggs, secretary-treasurer, Acme Spinning Company, Belmont; second vice-president, C. D. Welch, vice-president and agent, Cramerton (N. C.) Mills; secretary-treasurer, Fred M. Allen, Gastonia, N. C.; and executive-assistant, Mildred G. Barnwell, Gastonia, N. C.

"Rayon Organon" Optimistic on Outlook for Textile Industry

With rayon yarn stocks continuing to decline, and with expectations of further expansion in business for the next year or two, there will continue to be an indicated shortage of supply to meet the steadily growing demand for this product, according to the current issue of the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

Commenting upon the current supply and demand situation and the effect of governmental action on business, the *Organon* states, "It appears that next year there will probably be a distinct world shortage of bleached sulphite wood pulp production, the main source of cellulose for rayon production. It is difficult to conceive how any probable governmental action could either deny the need for new capacity here or stop the installation of new sulphite mills to meet this demand."

Regarding the outlook, the publication states that "for 1937, we visualize at least a 10 per cent increase both in textile and general business activity over their 1936 levels. This expectation is based on an analysis of the economic forces involved, and not on any political developments before or since November third."

The question of supplying the demand now being experienced continues to be the most important problem facing the industry, states the *Organon*. Stocks of yarn on October 31 declined to a 0.3 month's supply (barely a 9 days' supply) based on average monthly deliveries of yarn over the previous 12 months. This supply is one of the lowest ever witnessed in the industry. "With an active demand continuing into the forward months, a record-low stock position, a record-high production rate, and no new capacity in sight for nearly a year, it appears as though the present dilemma of the producers in allotting yarn on a percentage-of-requirements basis will continue for a number of months to come.

Catalog by Westinghouse

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has prepared a catalog section describing the new line of Westinghouse polyphase detachable meters. The publication describes the types CS-2, CS-5, CS-7, and CS-8 meters and sockets suitable for their use, including types S-5, S-2, and S-8. Another leaflet describing the explosion tested direct current motors has been made available.

Hercules Powder Company Acquires Subsidiary

Hercules Powder Company, Inc., Wilmington, Del., has acquired the assets of its subsidiary, Paper Makers Chemical Corporation, which has been operated as a separate company since 1931, when it became associated with the Hercules company. W. J. Lawrence has been elected vice-president of Hercules and will be general manager of the Paper Makers Chemical Department.

Raylubric Pebble Control

E. F. Houghton & Company, 240 W. Somerset St., Philadelphia, Pa., has announced that with the introduction of their new rayon soaking product, Raylubric PC, that there is the assurance of definite uniform control of the degree of pebble, yard after yard, year in and year out. The Raylubric products are said to be free from impurities or materials which would tend to turn rancid, putrefy, mildew, or produce an unpleasant odor in the finished fabric. Complete information and samples of pebble crepe produced with Raylubric PC may be obtained by writing to the Houghton company.

Study of Trends in Textile Production and Distribution Well Under Way

Under the direction of Dean Joseph H. Willits, of the Wharton School of Finance, University of Pennsylvania, the Textile Foundation's study of the trends in the organization of production and distribution is well under way. The inquiry is centering on those developments in organization which have involved sellers endeavoring to achieve control over their markets, and buyers over their sources of supply. The report is being based upon an analysis of the experience of those companies both inside and outside of the textile industry which have tried some form of vertical organization or merchandising in the last 10 to 15 years.

Carl Henry Leis Passes

Carl Henry Leis, chief engineer and factory manager of Johnson Bronze Company, New Castle, Pa., passed away at his home November 11, at the age of 45. Mr. Leis was born in Germany and came to this country in 1917. He has been associated with Johnson Bronze Company since 1927.

Refrigeration Booklet

Carrier Corporation, 850 Frelinghuysen Ave., Newark, N. J., has prepared a booklet entitled *46 Years' Experience* which presents the complete line of compressors, cold diffusers and evaporative condensers. Auxiliary equipments for special applications are also shown and several pages of installations, diagrams and testimonials show the varied uses of Carrier air-conditioned refrigeration.

Stainless Steel Truck for Handling Wet Fabrics

Stackbin Corporation, Providence, R. I., has announced that it will build stainless steel trucks, to be used for handling wet or delicate textile fabrics, in any size and for any weight to meet special requirements. The stainless steel truck has a smooth one-piece welded interior, a sturdy channel steel chassis, and is said to handle goods without stain or tear.

Bristol Appoints Men to Field Service Organization

The Bristol Company, Waterbury, Conn., has announced the appointment of 4 graduate engineers to its field service organization; all of the men have just completed a two-months training course at the factory. While the newly-appointed engineers will be available on short notice for, installing checking, and adjusting Bristol instruments, their primary function will be to take care of the company's many customers who have subscribed to the periodic inspection service that the company has offered at a nominal rate for many years. The new engineers are E. H. Hart, J. N. Swarr, K. J. Platt, and R. A. Barnes.

Bureau of Standards Appointment

J. D. Malcolmson, Robert Gair Company, Inc., has been appointed by the United States Bureau of Standards, Department of Agriculture, as chairman of the simplified practice committee to standardize boxboard calipers.

Dayton Rubber Judged Leader by Direct Mail Advertising Assn.

The Dayton Rubber Manufacturing Company, Dayton, O., was judged one of the 50 leaders in mail advertising by the Direct Mail Advertising Association. The Dayton program was wrapped around the theme of the "ABC's of V-Belts" which offered the distributor salesman a concise manual that would enable him to quickly locate his market and present his sales story in the shortest possible time. This co-ordinated campaign assisted the consumer, the industrial distributor, and the manufacturer.

New Company Formed

G. A. White & Company, 213 West Fourth St., Charlotte, N. C., has been formed, headed by G. A. White and A. C. Roberts. The purpose of this company is the selling and applying of Keasbey & Mattison asbestos pipe and boiler covering. A complete stock of materials will be carried and a force of experienced workmen maintained. Both Mr. White and Mr. Roberts are well-known to the trade in the territory to be served.

Freeman Manages Department of Goodrich Company

Leonard M. Freeman, who has been manager of the chemical laboratories of the B. F. Goodrich Company for the past 5 years, has been named manager of the companys' raw materials inspection and development department. Mr. Freeman is succeeded by Robert V. Yohe who has been on the technical staff of the company since 1931.

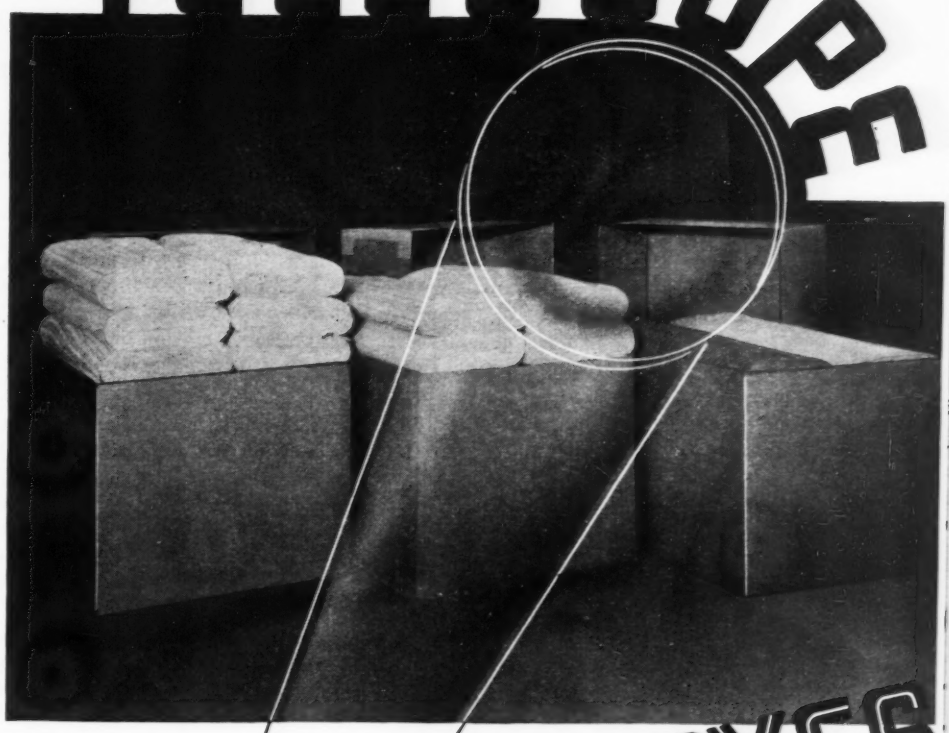
Catalog by Brown

The Brown Instrument Company, Philadelphia, Pa., has released a catalog No. 6703 on Brown thermometers and pressure gauges. It covers the complete line of Brown thermometers, gauges, indicating, recording, and controlling instruments, and enumerates the wide range of industries to which they are applicable. Also it describes the classes of Brown instruments and explains outstanding constructional features in simple, non-technical language, and presents a detailed description of each instrument of the line.

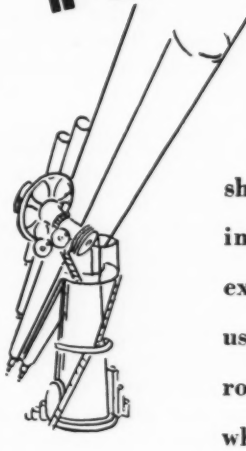
Changes in Hart Organization

The Hart Products Corporation, 1440 Broadway, New York City, manufacturer of textile chemicals, has announced that Samuel Lehrer, formerly vice-president of the company in charge of sales for the southern territory, has resigned his position and is now engaged in the wholesale jewelry business. Charles C. Clark, Spartanburg, S. C., has been appointed to succeed Mr. Lehrer, and Talley W. Piper, Fairfax, Ala., is his assistant.

TELESCOPE



TEXTILE BOXES



While safe transportation is of utmost importance in designing all H & D textile shipping boxes, other items, such as convenience in shipping, reduction of storage space, are also taken into consideration. The telescope box is a typical example. It is constructed so that the same box may be used for various size shipments and so reduce packing room labor and expense. Whether you ship to mill, wholesaler or retailer, H & D corrugated boxes, made to carry up to 500 lbs., protect your products, most economically, against all transportation hazards.

Youll WANT THIS BOOK

THE HINDE & DAUCH PAPER COMPANY
454 DECATUR STREET • • • SANDUSKY, OHIO
Send me your book, "MODERN SHIPPING BOXES"

Name _____
Company _____
Address _____
City _____ State _____

PERSONAL NOTES
about Men You Know

OTTO A. BELGER, who was formerly head of The Belger Comany, Watertown, Mass., recently became a member of the research and development staff of H. & B. American Machine Company, Pawtucket, R. I. This company manufactures opening, carding and spinning room machinery. Mr. Belger,

Mr. Belger

Mr. Powell

who received his education in Germany, is identified with several inventions in the textile industry. He is the inventor of the Belger roving tester.

C. M. POWELL, Charlotte, N. C., has been appointed sales representative for the H. & B. Company and will make his headquarters in the Johnston Building. Mr. Powell served with the Cannon Mills group for a number of years as superintendent and more recently he was with Sonoco Products Corporation as North Carolina representative.

HUGH S. CLARKE, who for some time has been manager of the Stonewall (Mass.) Cotton Mills, has returned to the Texas Textile Mills, Inc., as superintendent of the Love Field plant of this company, at Dallas, Tex. He succeeds INGRAM LEE, who has resigned and entered the insurance business.

J. M. BAKER, Box 128, Greenville, S. C., has become connected, as sales representative, with W. T. Lane & Bros., Poughkeepsie, N. Y., manufacturers of mill and laundry baskets, trucks, etc. With headquarters in Greenville, Mr. Baker will represent this company throughout the Southeast, calling on the textile and other industries. He is well known in the textile industry, having been formerly connected with A. C. Lawrence Leather Company.

B. W. THOMPSON, formerly with Textile Finishing Machinery Company, Providence, R. I., has been made chief engineer and master mechanic of Wiscassett Mills Company, Albemarle, N. C.

T. B. HUNT has resigned as superintendent of the Atlantic Cotton Mills, Macon, Ga., to accept a position as traveling representative for Precision Gear and Machine Company, Gastonia, N. C. His territory is Alabama, Georgia, and Tennessee. ERNEST HOLT, who has been overseer of carding and spinning, Jennings Cotton Mills, Lumberton, N. C., has been made superintendent of the Atlantic Cotton Mills, succeeding Mr. Hunt.

THOMAS A. MOTT, JR., graduate of N. C. State College in textiles, is now connected with the technical service department of Corn Products Refining Company, Woodside Building, Greenville, S. C.

T. N. VAN DYKE, treasurer and general manager of the Richmond Spinning Company, Rossville, Ga., has retired after being with the company for 33 years.

H. C. KITCHENS has resigned as assistant overseer of spinning, Mill No. 3. Riverside & Dan River Cotton Mills, Schoolfield, Va., to accept a position with Mooresville (N. C.) Cotton Mill No. 3.

HARRY LINEBERGER, formerly of the sales force of Aberfoyle Manufacturing Company, has been elected secretary-treasurer and general manager of the Knit Products Corporation, Belmont, N. C., succeeding A. F. DICHTENMULLER, who is now president of the Apak Company, Charlotte, N. C.

MILLARD MOORE and MR. DEARMAN, the latter from Roseboro, N. C., have become overseers of spinning and carding respectively at Sanford (N. C.) Cotton Mills, succeeding W. T. CANN and W. T. WORRELL, resigned.

J. K. BOATWRIGHT has been elected treasurer of Callaway Mills, LaGrange, Ga. He has been assistant treasurer, and succeeds as treasurer FULLER E. CALLAWAY, JR., formerly president and treasurer, who continues as president. PERRIN N. COLLIER, assistant vice-president and staff manager, has been elected to a vice presidency.

W. O. REED, formerly overseer spinning, spooling and warping, Aurora (Ill.) Cotton Mills, has been made overseer of the same departments at Pomona Manufacturing Company, Greensboro, N. C.

W. F. HUTCHERSON, formerly with the Palmetto Cotton Mills, Palmetto, Ga., has been made overseer carding, Samoset Mills, Talladega, Ala.

R. L. HULSEY has resigned his position with Ware Shoals (S. C.) Manufacturing Company to become overseer carding at Mansfield Mills, Lumberton, N. C.

W. A. JORDAN, who has been overseer of cloth room, Darlington (S. C.) Manufacturing Company, has accepted a similar position at the Mansfield Mills, Lumberton, N. C.

D. G. FLOYD, formerly with Merrimack Manufacturing Company, Huntsville, Ala., has become superintendent of the Sanford (N. C.) Cotton Mills.

Obituary

JAMES P. GOSSETT, 76, pioneer in the cotton textile industry, passed away November 8 after having been in declining health for two years. Mr. Gossett, who built the Williamston Mills in 1900, steadily expanded his textile operations and at the time of his death was chairman of the board of Gossett Mills, Anderson, S. C., Calhoun Mills, Calhoun Falls, S. C., and Chadwick-Hoskins Company, Charlotte, N. C. He was at one time president of the American Cotton Manufacturers Association.

CHARLES L. UPCHURCH, Athens, Ga., for many years prominent in the textile industry, passed away the early part of November. Mr. Upchurch was head of C. L. Upchurch & Sons.

T. LEROY SMITH, Charlotte, N. C., sales representative for the Clinton Company, and formerly representative of A. E. Staley Manufacturing Company, passed away during the early part of November, after an illness of about 6 months.

H. M. MILES, overseer of carding, Dixie Mercerizing Company, Lupton City, Tenn., succumbed to a heart attack in November.

W. THOMAS LOVE, president and treasurer of the Spencer Mountain (N. C.) Mills and the Ranlo Manufacturing Company, Gastonia, N. C., died suddenly at his home on October 15.

53.8% OF THE LOOMS IN THESE SIX STATES ARE USING WARPS FROM

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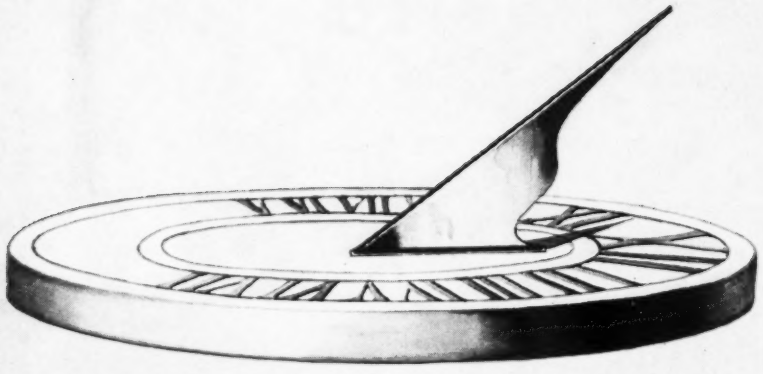
SPOOLERS AND WARPERS

"Our yesterdays follow us; they constitute our life, and give character and force and meaning to our present deeds."

—*Joseph Parker*



The lengthening shadow on the sundial is about to mark the passing of another year . . . another milestone in the course of our experience. Reckoned simply as the March of Time, a year is of little consequence . . . but joined to 37 other years of experience it helps form an imposing background by which we can be guided in the future.

Facing the new year—and the future, with an enviable record of accomplishment over the past 38 years, SONOCO continues its guiding policy of exhaustive technical research toward further development of products and service.

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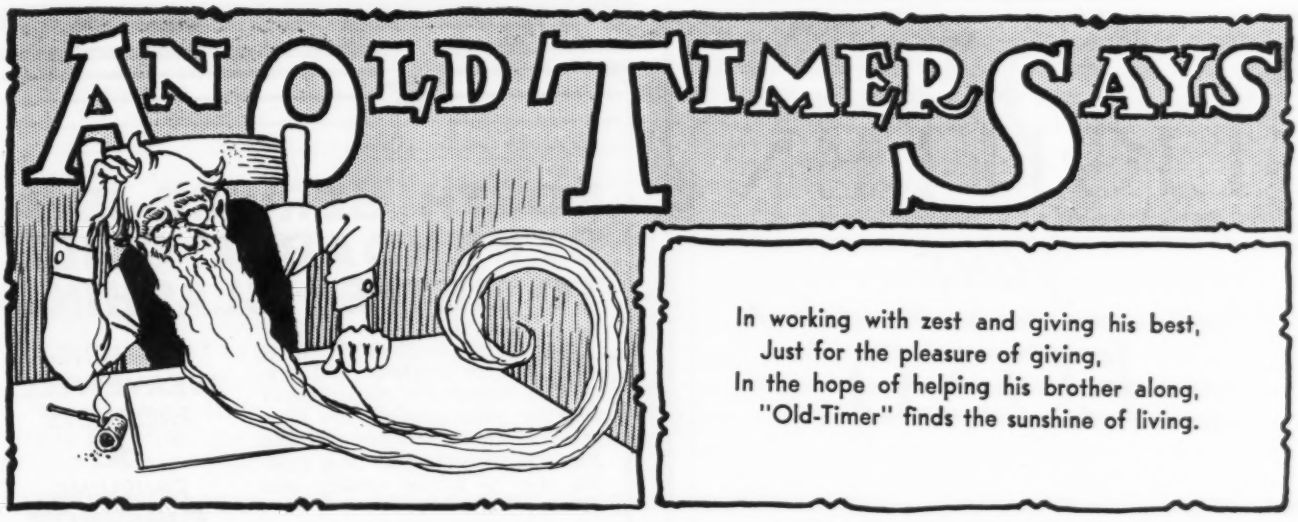
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"There Is One Sure Way to Obtain Promotion"

IF YOU KNEW a man who had lived for five or ten years over a mine which contained enough gold or silver or coal to make him many times a millionaire, you would consider him rather stupid because he had never taken advantage of the great wealth which he could have so easily secured, wouldn't you?

Now, to carry our reasoning a little further, and say that if you were told that although this mine did not contain gold, silver or coal, but did contain everything necessary for him to obtain promotion—everything which would bring him success in the textile business—and that man had not even troubled himself to find that out, well, you would say he is a damfool sure enough.

Better hold on a bit, fellows, before you call too many people damfools; and you stop to think.

It can be said that we are all actually living over a mine which contains that most valuable thing we all need to obtain promotion—that thing that would bring success—that thing that would make superintendents out of hundreds of men who are overseers—that thing which would make managers out of hundreds of men who are superintendents today.

And there are so very few men who do not know what that mine contains—they are like the blind mule you have heard the joke about—they just don't seem to give a damn—they go to the job each day and just do the things that the job calls for—then after the day's work, they sit around the house doing nothing or loaf around the pool room, corner drug store or some other place using up the valuable time that they should be using to dig into that mine I am trying to tell you about.

Just to be sure that there is some fellow who really does not know what that mine contains, I am going to state what it is: *Knowledge.*

Oh, you say, I knew that all of the time. Of course you did—but what in heck are you doing about it? Back in my time, fellows, if a man got any of that valuable stuff called knowledge he not only had to work like the dickens for it but he had to pay dearly for it in dollars. I well remember the first book on designing I ever heard of—the overseer of weaving came to me and suggested that he and I go halvers and buy it. It was put out by E. A. Posselt.

"How much does it cost?" I asked him. "Five dollars", he replied. In fact that was why he did not buy it by himself—he wanted someone to share the expense.

Yeah, I know, $5.00 doesn't sound like much to you men today—but that overseer was making $18.00 and I was getting $1.25 per day to run a section—not the kind of day you men work; but a day of eleven hours and until 3:00 P. M. Saturday afternoon. You can imagine how we felt like jumping up and down and popping our heels together every night when we got home, and then study for a couple of hours after supper by a kerosene lamp.

Today you fellows only work long enough to just get started good and then you have got to have an electric fan, indirect lighting, a pitcher of ice water, cigarettes already rolled, a whole darn box of matches just to strike as many as you want to, and, oh well, boy, I suppose I was born just about 40 years too soon!

Now look what you have today—that mine I have been talking about which we old-timers had to dig in like the dickens to get what little knowledge we were able to obtain—it (that mine) has made the same progress which all of these new-fangled machines have made—a machine to tie your knots for you—a machine to draw in your warps—looms that thread their own shuttles—a machine to handle your cotton—in fact, machines all acting like they have gotten hold of some of that knowledge we have to dig so hard for—and that knowledge which was buried so deep—it has just busted out of the ground and is running after you fellows more than a hound dog chasing a rabbit.

If you want to know how to set a card, all you have to do is ask COTTON and that editor will put a half dozen men to work not only to tell you how to set it, but how to grind it, how to clothe it, how to oil it, what draft you should use, how to set it to give maximum breaking strength and ever other darn thing that has happened to a card from the time we had the old stationary flat tops and 40 to 60 cards

LIGHTEN *your* LOAD

The load you carry from the time you place your order for raw material and until the retailer pays for the finished product is often very heavy. Our highly effective factoring service can lighten this burden tremendously, thereby enabling you to get more production, more new business, and concentrate on buying, manufacturing and selling. Incidentally, we also assume your credit risks.

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MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

going into one on a railway head (35 years ago) right on down to the card that the machinery builders are going to put out next year that will have bells on it or something.

I'll never forget how a whole bunch of us loom fixers worked about a week trying to find out how to make a tape selvage for a piece of sateen goods we were making one time—and just look what you do now. If you want to know how to draw in a mock leno or anything you want to know about a loom—you just scribble off your question to the "How Other Men Manage" department of Cotton and gosh, they don't even wait to publish it in the next month's magazine if you say you are in a hurry, they shoot it to you special delivery or something—and does it cost you $5.00 like our book on designing cost my overseer and myself? Lord no, they just give it to you and only ask you to pay $1.00 per year which I suppose just about takes care of the postage it costs them to send the magazine to you.

Yeah, fellows, Old Man Knowledge is trying his best to get you to be friends with him. Correspondence schools which cover everything from A to Israel—night schools which the mill and the state pay for—

Say, can't you fellows see how easy it is for you to obtain knowledge this day and time? In all seriousness, gentlemen, it is my firm conviction that "There never was a time in the history of the world when it was so true that 'Knowledge is power'."

Also, there never was a time in the history of the textile business when an overseer or superintendent had such a wonderful opportunity to get into the big money—the salaries which it is possible for an outstanding textile manufacturer to command today are comparable to salaries in any of the other large manufacturing industries and any overseer or superintendent who has the determination to succeed—to rise above the crowd—the man who has backbone enough to set aside two or three nights a week to devote to a systematic line of study and will stick to it regardless of a good picture show being in town, a card party or anything else—can obtain a college education in two years' time—yes, the same college education he would get in four years at college.

A friend of mine gave me a thought a few months ago about men who are outstanding in their knowledge of textile manufacturing and briefly, this is it:

For the past ten years mills have been merging their plants to form larger units and larger single units of mills have been built with the idea, of course, of lowering total manufacturing costs. In the next few years ahead of us it is highly probable that management will be spread out over several units of mills—that is, where you find an outstanding manager, that man's management will be put over more mills.

That is going to make the man with knowledge still more in demand than he has ever been before—Oh, boy, don't I wish I could start all over again! Well, I can't, but you fellows can, and if you don't—if you don't prepare yourselves for some of these fine positions which are soon going to be begging for me—then you are not the fine bunch of men I have always claimed you are.

Now come on, and help Old-Timer prove to the world what he has been preaching all these years—

That the overseers and superintendents in the textile industry are the highest type of foremen in any industry in the world.

(Editor's Note: If you are willing to join the ranks of overseers and superintendents who are determined to rise above the crowd it would please Old-Timer greatly if you would drop him a line that this article has inspired you to go to work to obtain that knowledge he speaks of and probably your letter will inspire him to make a further effort to be of service to you.)

Conserving Human Energy

Human energy is definitely limited; therefore, its conservation is of interest to everyone. This conservation of energy, according to Dean F. W. Shumard of the National School of Time Study, Norwalk, Conn., is one of the most important things with which time-study work deals. To that end it eliminates useless motions, thereby releasing energy that can be applied to useful ones. Energy values cannot be relied on unless they contain, among other things, proper rest factors that insure their utility.

Fatigue, continues the Dean, not only diminishes the strength and vitality of the workman, but reduces the quantity and quality of output. Employers must pay for fatigue because it is a by-product of manual energy. This being true, it is evident that high fatigue ratios attending specific tasks make those tasks cost more than others whose energy values contain lower ratios or percentages of fatigue allowances.

Manufacturers spend thousands of dollars for new types of machines that yield savings worthy of the capital investment. The average plant official, when contemplating the purchase of new machines or labor saving devices, limits himself to about two broad items of interest. These items concern the preservation or betterment of quality of product and also the question of cost reduction. Too often, however, they forget to ask a very vital question: "How tired will the operator be at the end of the day?" Time study men and factory engineers should not only be vitally interested in the ease of operation of any machines being purchased, but should give the same serious thought to any additions or changes to general plant equipment that will conserve human effort.

A new machine that paces a worker too fast, or one that forces him to work in an uncomfortable or tiring position, is definitely not a source of saving. The greater fatigue caused by an unfavorable operating condition often results in such a loss of quality and efficiency that the new machine is a liability rather than an asset.

Wherever, concludes the Dean, the human factor is involved, the conservation of energy must be one of the first items to consider.

Catalog on Air Operated Controllers by Brown

The Brown Instrument Company, a division of Minneapolis-Honeywell Regulator Company, Philadelphia, Pa., has released its catalog No. 8901 which covers the complete line of Brown air operated controllers. It explains in simple non-technical language the principle of operation of these controllers and contains many helpful diagrams, illustrating their simplified construction, the ease with which control units may be interchanged, and the ease of tuning in for throttling range and automatic reset.

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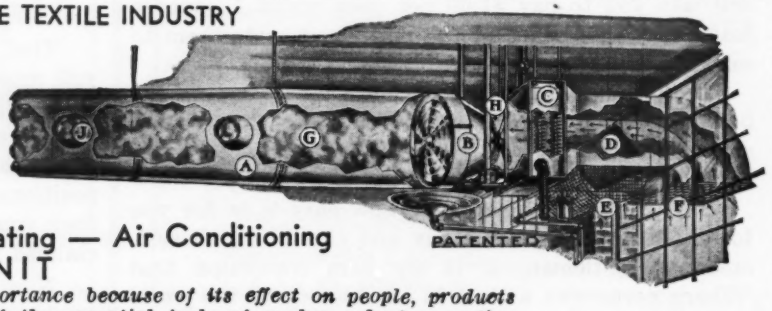

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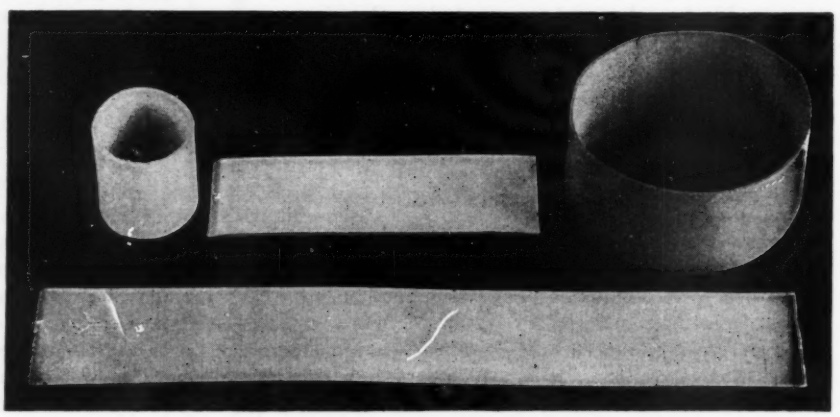

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

How Do You Prevent Mixed Filling in the Weave Room?

EDITOR COTTON:

One of our big problems is mixed filling in the weave room. We paint the tip ends and bottom ends of our filling quills as a means of identifying the different filling numbers. We sometimes run as high as 20 or 25 different numbers at the same time and you can readily understand the difficulty we experience in handling that many different color combinations on a limited amount of quills.

We cannot use ordinary mill crayon due to the fact that most of our products go into the rubber trade and our customers claim that the crayon prevents the rubber from sticking. It is not practical to tag our doff boxes of filling, as is done by some mills, since we use filling chutes and each bobbin must be marked individually.

I would greatly appreciate information from your readers concerning any kind of crayon or other means of identification which we might use successfully, which would also enable us to get away from the use of painted quills.

CONTRIBUTOR No. 6596

How Would You Run Spun Rayon?

EDITOR COTTON:

The running of spun rayon is becoming important in the textile industry and I would like to ask a few questions regarding the processing of it on cotton machinery that is now running 40s yarn with a twist multiple of 3.50.

Pickers

The rayon is 1½ denier and 1½-inch in staple. Should this be put through the bale opener to fluff it for further processing? Should the screens and grid bars be changed? If not, what would prevent the rayon falling under the pickers? What should be the speed of the beaters and fans on the pickers? We have two 40-inch Buckley beaters, one 18-inch Buckley beater on the breaker and one 18-inch, 2-blade beater on the finisher picker. How many processes of picking should be used and what should be the number of blows per inch on each process? What should be the weight of the breaker and finisher lap per yard? Should any weight be run on the lap-racks, or binders on the laps? What setting should be used between the feed roll and the 2-blade beater on the finisher picker?

Cards

On the cards, what should be the settings for the percentage plates, flats, screens, mote knives, and feed plates? What are the speeds to be used on the flats, licker-in, and doffer? Should a blank screen be put under the licker-in? What should be the length of time between stripping? What disposal may be made of the cylinder, doffer, and flat strips? How long should the cards be run before grinding? What should be the weight of sliver from the cards? What percentage of relative humidity should be run in the card room?

Drawing

How many processes of drawing should be run? What r.p.m. of the front roll should be run? What is the weight of the sliver on the breaker and finisher processes to be and what percentage of production may be expected? Would a fiber guide have to be used? How should the rolls be set for length over staple? Should the sliver guides be replated?

Roving Frames

What hank roving should be made? What should be the speed of spindles, front rolls, and what twist multiple should be used? What percentage of production may be expected? How should the rolls be set; should a guide be used on the slubber? What would be the cleaning schedule and the oiling schedule? Could regular bobbins be used or would special bobbins have to be run? What type of top rolls are best for running the rayon on the roving processes, and how many processes of roving should be run? What should be the finished hank? What should be the percentage of relative humidity.

Spinning

What should be the spindle speed, type of front top roll and middle top roll, roll setting, traveler, and relative humidity? How high should the thread board be set? As this refers to 40s, twist multiple of 3.50, if anyone has had experience with this count, what breaking strength was shown, and what percentage of production was secured?

This is a chance for everyone to put on his thinking cap and turn in some good ideas. The spun rayon field is a new outlet for goods made on cotton machinery and there is plenty of room for expansion in the textile field, so let's get together and pass along any experience and ideas so that when the spun rayon is placed in your plant, you will be ready to at least start out and run it without any loss to your firm while you are experimenting with it. How would *you* run spun rayon?

CONTRIBUTOR No. 6601

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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DRENCHO XX costs a little more than ordinary compounds, but such small amounts are necessary, that it is really more economical in the long run.

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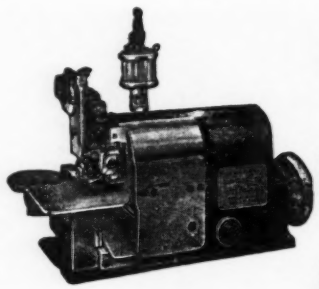

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Revives Combing Discussion

"Jock" re-joins our "net-work", answering some questions on combing. If you don't agree with what he says, let us know . . . . . .

EDITOR COTTON:

I am going away back to the September 1931 issue of COTTON to bring up some questions on combing that were published then, in the hope of reviving some interest in discussion of this department. On page 1052 of that issue, "CONTRIBUTOR NO. 5070" submitted the following problem:

"We are using the Whitin Model D-2 comber, and find in setting the top comb shaft that if we set it 6¾ inches from the back side of the detaching roll, we cannot get the proper angle on the top comb. In trying to get this angle the top comb drops on the nipper knife. We have had to set our top comb shafts 6½ inches from the detaching roll to allow the top comb to drop between the nipper knife and the detaching roll. I wonder if this condition is peculiar to our combers, or whether it is the general condition. I would be glad to have this point discussed by some of your readers.

"We have always had a great deal of trouble with our waste condensers in keeping the web of waste pieced up between the screen and calender rolls. If we set the feed correctly for damp weather, then as soon as the weather dries up, the web stretches and breaks down. We re-set the feed, and when a damp spell comes along the web sags and breaks down. If the web is allowed to pile up on the floor, it gets blown and kicked around. How can we remedy this?

"Several years ago we tried spraying the cotton with oil. It soon developed that this caused the half laps on the combers to load up with small bunches of waste, and unless the brushes were new or constantly being set up, these bunches would fly off into the work making a great number of undesirable slubs which were extremely difficult to remove. Does anyone know why this condition occurs and is there any remedy for it? We tried everything we could think of and finally we gave up the idea of oil spraying.

"I would be glad to have the opinions of some of your readers as to what is considered to be a reasonable life for a circular comber brush."

You will recall that subsequent to the publication of these questions there was quite a hot discussion that developed between "M. W. H. (MASS.)" and "R. G. (R. I.)" as a result. At the present I am not going to consider that discussion but will stick to answering the original questions of "CONTRIBUTOR NO. 5070".

When "CONTRIBUTOR NO. 5070" states that his top combs strike the nipper knife when the top comb shaft is set at 6¾ inches from the steel detaching roll, I think he has got quite a little angle in his top comb, which is his own business, as we do not know the conditions under which he operated his combers. Anyway, that is not the point he wants cleared up, so in answer to the top comb question, I say that he did no harm if he achieved the results wanted, for I know that he must have used up all of the possible space or movement of the slot in the top comb and top comb arm to get his angle before he resorted to setting the top comb shaft closer. I have never had the trouble that he mentioned, of course, maybe I never put the angle in that maybe he is putting in; another thing about standard settings and timings of the comber is that a comber man does not have to be tied down to a majority of them—many are just a standard from which to work.

"CONTRIBUTOR NO. 5070" is not the only one who has had trouble with the comber waste breaking down between the screen and calender rolls, and more trouble will be experienced with this evil on short cotton than on long cotton, for with long staple the web has a better chance to hold together especially if a large amount of waste is being taken out, for the longer fibers in the waste have a better chance to hold the waste together during dry weather. Now I cannot give a positive cure for this evil, but will state what I have tried and benefited by. I have had water sprinkled around the floor about the screen and kept the web rod polished at all times. I would not strongly advocate this if a man has a lot of combers, it is dangerous to the help who have to work around the combers. It may seem strange to suggest a remedy and not advocate putting it into effect.

But I have done the above—and it has been done in other mills where I have been and have been asked for a remedy, but I have told them about the danger of sprinkling water on the floor and was told to go ahead and try it, and I know that it relieved the trouble temporarily, but whether or not they continued it I cannot say.

But "CONTRIBUTOR NO. 5070" does not need to worry as regards his being the only one having that trouble. I think myself it was a poor attachment to equip a comber with for that kind of work; it is too far to be carried from the screen to the calender rolls even when working long cotton. For instance, when the comber is equipped with aspirators and the waste is brought forward by the steel press rolls and deposited in the waste box, it will curl or break or wind around the steel press roll on dry days, especially when the cotton being combed is short.

The Life of a Comber Brush

Now, regarding the life of a circular comber brush, a lot depends on the man in charge of the comber, if he has experience and ability. A new set of brushes can be soon put into bad shape by a man putting in a new set and not checking over the half laps, for nothing will spoil a brush quicker than a bad half lap especially where the needles are broken or bent. After a new set is put in, all the bad half laps should be replaced; the next thing that would injure the brush is setting them too deep. Another thing to be considered after putting in a new set of brushes is that the first time they are turned around they should not be raised, for after being set when first put in, they are set deep enough to keep the half lap clean; so if the half laps are in good condition they only need turning around for the fibers of the brushes are only hooked after running so long.

Another very important item when putting in a new set of comber brushes is to size every one and see that they are all of the same diameter. I have found some to be ⅛-inch smaller in diameter than

others. This can be done easily by gauging the brushes in the jaws of a bench vise.

I wonder how many comber men know the correct diameter of a circular comber brush without taking one to the bench vise and gauging it. It is supposed to be 4¼-inch in diameter but I found new ones that were only 4⅛-inch. Just imagine what is lost in a new set of brushes in that other ⅛-inch; also if an odd one or two of that size was put in with a standard size. (It is entirely possible to find one that would be a shade over 4¼-inch.)

When the comber brushes get down to 4-inch diameter they are what I call "all shot," for they are so small that they begin to carry the waste around the brush several times before it is released and then the waste is in the form of a ball—which I call chop suey—and it loses its commercial value. This is done on combers with aspirators. With the doffer back equipped combers, this evil is overcome due to the doffer wire on the doffer taking the waste from the brush all the time the doffer is revolving. Also, a brush can be used longer on a doffer equipped comber. If it is desired to run the brushes on a comber with aspirators longer, speed up the brush shaft, which is equivalent to raising the brushes when they are in good condition.

Circular comber brushes cost money and many more months of wear can be gotten out of them if a little care and judgment are used. I will have something more to say on this subject later that I know will be of interest. I cannot honestly say what is the real life of the circular brush, for there are so many things to be considered, such as the original setting, the condition of the half laps, the condition of the brushes, etc. I know that I have had some running for three years—but bear in mind that my half laps were kept clean.

I am going to ring off now for this time, but I have more to follow and I will try to make my letters interesting for all and keep the comber discussion as interesting as I hope it will be valuable.

JOCK (MASS.)

Causes of Filling Breaking on Change

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6456" who is having trouble with his filling breaking on the change (page 102, March issue), I suggest that he look to the following causes:

Bobbin turning in disk. This is caused by the vibration of the loom while it is running. By taking a pencil and marking a line on the bobbin that is to be transferred next, one can tell if the bobbin is turning in the disk. If it is, this will naturally cause such a strain on the filling that it will eventually break. It is possible to make the bobbin nose disk fit closer against the bobbin but this will sometimes ruin the bobbin. The best idea is to replace the battery disk. Sometimes it is necessary to replace the journal also.

Transferrer fork cutting filling. Often little rough places or barbs will come on the transferrer fork and will cut the filling when the fork drives the nose of the bobbin into the shuttle. These may be eliminated by using a rat-tail file and emery paper. Some fixers find it beneficial to go over their section periodically on this one item and prevent its ever happening on more than a few looms. It is probable, too, that the transferrer fork is traveling too deep into the shuttle on the change, or the fork may not be centered. If the bobbin is rolled in at all, instead of being placed directly into the shuttle, there will be a tendency to break the filling. A look at the shuttle will show if the bobbin is being rolled in.

CONTRIBUTOR NO. 6463

Comments On "Running Dotted-Swiss Through Shearers"

EDITOR COTTON:

I have read again the article on page 103 of the June issue of COTTON on "Running Dotted Swiss through Shearers" where "CONTRIBUTOR NO. 6502" says that "New and improved shears will handle dotted swiss at 30 to 40 yards per minute, using a two or three blade shear, finishing it in one pass through the machine."

In the first place, all dotted swiss or any kind of filling float *must* be given two runs through a shearing machine. It is impossible to shear the goods perfectly on any type of shear in one run.

In a double cutter shear, one revolver has what we term left-hand spirals and the other revolver right-hand spirals. This is supposed to clip the floats evenly up to the spot, going each way. It is impossible, however, to put enough tension on the goods to shear all the spots in one run. Tension is necessary in order to draw the goods down in width which allows the floats to become loose so they can be sheared. If enough tension is put on the goods to shear them in one run, it would narrow them down so that there would be a complaint on width.

The number of cutting parts in a shear does not do away with running the cloth twice through a machine. We know this is true because we know of a mill that has a six-cutter float thread shear with which they expected to shear any of their goods in one run. They found, however, that to trim up close to the spot on each side, it was necessary to give the goods two runs, even through the six-cutter machine.

The speeds today are much higher than they were a few years ago. For a regular double cutter float thread shear put out by a prominent company, the speeds are 23, 31, 43, and 59 yards a minute. However, we have heard of a mill that has the double-cutter shears increasing the speeds to 25, 34, 46, and 63 yards per minute.

If the loose floats could be sheared up close to the spot, it would be possible to give the goods a fewer number of runs to do the shearing. In the finishing, however, if the ends are not long enough, on certain classes of yarns used in the spot, the ends will pull back into the spot, making them imperfect. For this reason, different patterns are specified in the orders to have the ends a certain length. The longer these threads are left, the slower the shearing and the more

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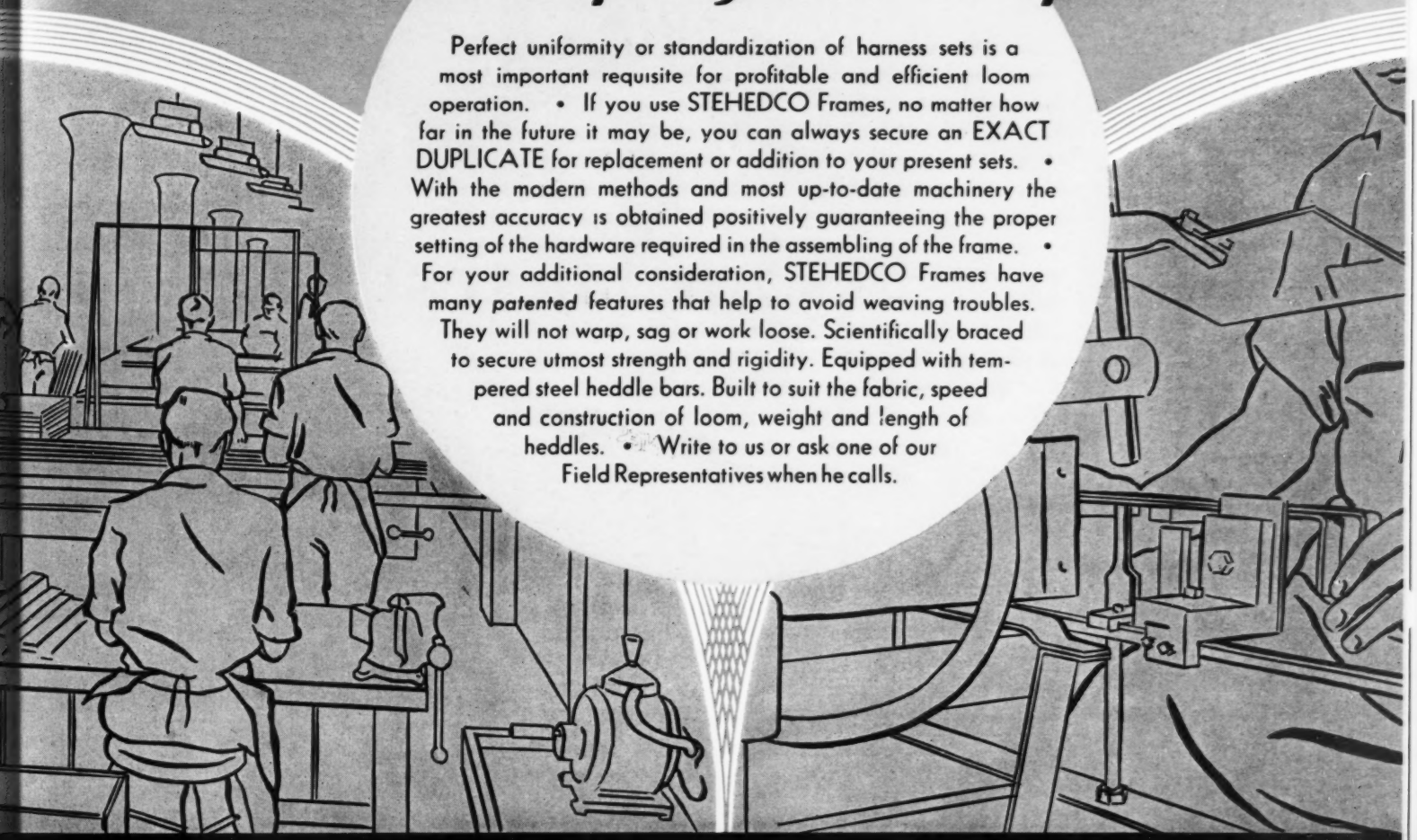

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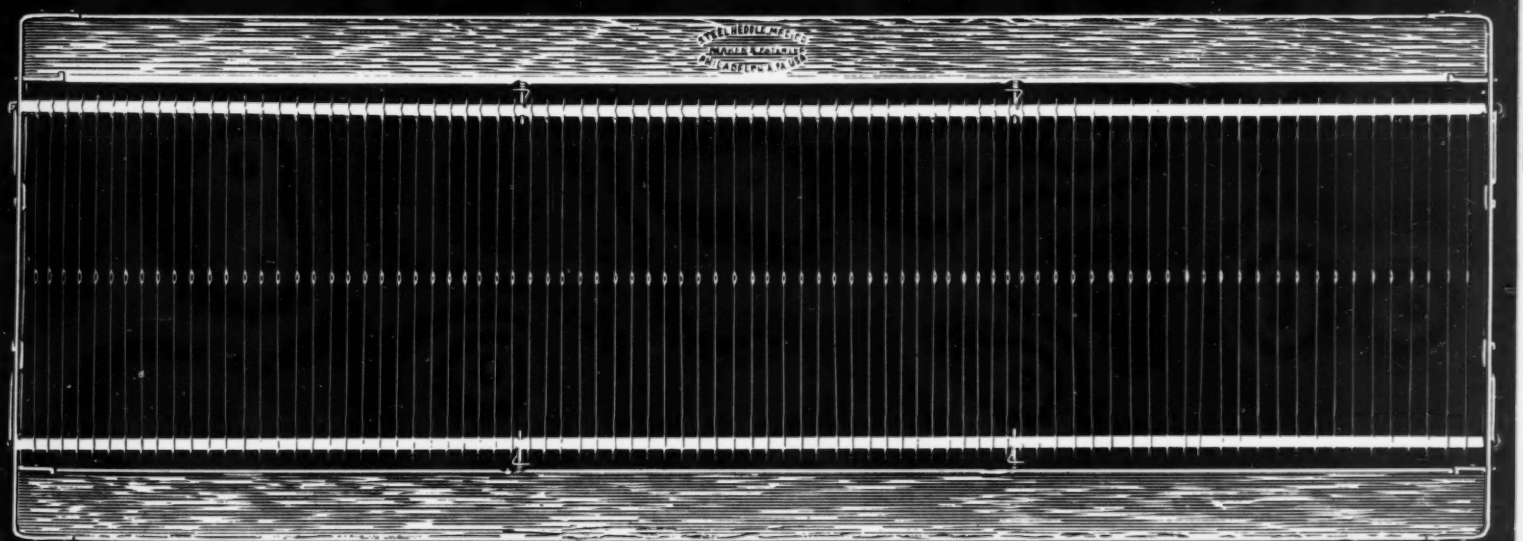

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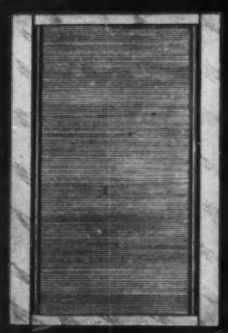

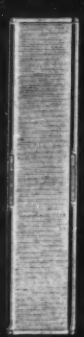

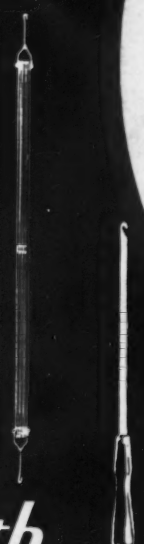

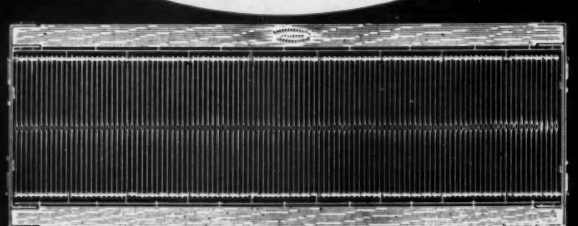

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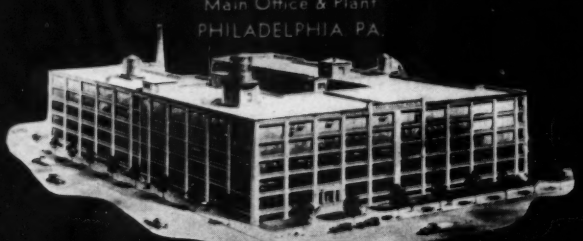

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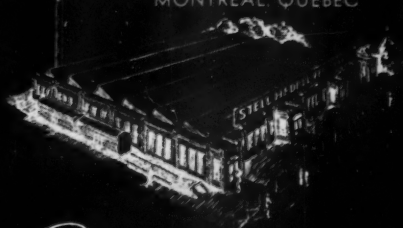

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runs must be given the goods.

"CONTRIBUTOR No. 6502" also said "suction is provided . . . to draw the threads into the knives . . . " This is not so. On this type of machine (two or three blade shear), all the suction is used for is to take the material that is cut off from the goods away from the machine.

He also refers to three-blade machines; we do not know of any three-blade shears being used on this class of goods.

In order to cut down the number of runs necessary, some mills have installed different methods of blowing the ends of the spots that are left after the first run so that they will be standing erect just as the goods pass over the cloth rest. This blast of air has been applied in different ways by different mills. On certain patterns, it certainly reduces the number of runs.

Here we have covered filling floats only. Warp floats have to be given two runs through a machine. If both warp and filling floats are in the same material, the treatment is entirely different.

As the reader will see, unless the type material run is known, it is impossible to give production figures.

CONTRIBUTOR No. 6558

Sound Advice on Broken Filling

EDITOR COTTON:

There have been several articles lately* in the "HOW OTHER MEN MANAGE" department on the subject of breaking filling. From my observation, breaking filling takes a heavy toll from the mills every day in quality and quantity production of cloth. I don't think there is anything I can write about this subject that the average overseer of weaving doesn't already know but I think it is more like a brick mason building a brick wall—he puts a few bricks into the wall each day until it is complete. So it is with breaking filling; we must keep building to prevent this trouble. For example, a loom may break filling about eight or ten times in 40 yards of cloth. Possibly the box front breaks two of them, the picker breaks two, the shuttle rebounds and snaps two, and maybe a splinter on the shuttle will add a couple more.

If I should start by saying that bad shuttles, crooked bobbins, chocked shuttle eyes, etc., will break filling, the reader will say "why doesn't he tell me something new." The point I am trying to bring forth is that we must keep constantly following this breaking of filling if we want to realize the satisfaction of having licked it. I suggest that if the filling is matched in the cloth that the overseer place a card on each loom and have a space on that card for each working day and have the weaver or test man mark each case of broken filling in the space on the card for that day and check those looms each day after they have been fixed by the second-hand or loom fixer. The next day another record should be kept so that any improvement may be noted.

Should the filling not be matched, I suggest that about 100 looms be tested by looking at the quills and bobbins in the cans. A conclusive test may be made in this manner in six hours. The loom may be breaking the filling on a full bobbin or it may be breaking it just before the filling runs off the quill. In this way, the trouble may be traced or otherwise the defect will continue.

The main point is to keep pegging away constantly after this trouble until most of it is eliminated.

CONTRIBUTOR No. 6557

*Previous discussions on filling breaking appeared on page 102, March, 1936, issue; page 118, May, 1936, issue; page 103, June, 1936, issue, page 87, August, 1936, issue; and page 103, September, 1936, issue.—THE EDITOR.

Bad Work at the Drawing Frames

EDITOR COTTON:

I am not seeing much in your paper these days about the different methods which carders use in opening and running cotton; I believe this is an important subject. I notice that where bale breakers are used in the opening room, many carders open 15 or 20 bales and lay them along the side of the bale breaker, requiring the operative to feed an equal amount of cotton from each bale.

Now I consider this a poor way to run cotton. Every carder should know that this *damp* cotton will not be cleaned as well by the beaters as that which has been opened and aired out; and if the stock is run right out of the bale, the beaters can make neps.

Where cotton is run which varies in length, strength, and grade in the same opening, I don't think it is possible to get as good a mixing as would be secured by opening 50 or 100 bales at a time. I don't think that any man is able to keep his numbers as even or his beams weighing as near the standard at the warpers by opening only 15 or 20 bales at an opening.

I have tried both methods and I find that large openings give much better results than small openings. The superintendent is lucky who has his cotton bought for him in large quantities and of about the same grade, and who has room enough for large openings.

I consider evenness to be one of the main things in a card room. A superintendent once said to me, "A carder who can get his roving even and keep it so, is a good carder." Now I don't think that any carder can get very even work where his cotton is opened a few bales at a time and in "job lots" at that.

I used to open 100 bales at an opening until an insurance agent happened in one day and cut me down to 50 bales an opening; he also banned the use of an old axe to cut the hoops, claiming that it would start a fire. I had opened thousands of bales in this manner without a fire or even a spark.

When it came to mixing the stock, I started at the farther side of the floor next to the wall and put bales of the same grade in this stack. I then started another stack in the same manner until all the cotton was opened. The opener men then used the cotton from the ends of the stacks, working from top to bottom.

Findings and *Recommendations*

"Mr. Jenkins, I have completed the investigation you requested me to make and these are my recommendations:

"You are now using two men on each shift with your obsolete bobbin cleaning machine. I recommend the replacement of this machine with a new TYPE K BOBBIN STRIPPER, which requires *only one man* on each shift. This will obviously net a saving *very worthwhile* to you.

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If there is a better way to mix cotton I shall like to have the readers of COTTON submit their ideas.

Why is it, Mr. Carder, that we have strings coming through on two or three pairs of speeders while the others are running all right on the same cotton, having the same setting of rolls and the same hank roving? I think it is because two or three bales of cotton in an opening have longer staple than the rolls are set for; this long cotton is coming through the room in streaks. This will happen even more when the stock is opened a few bales at a time. The method I have suggested would make it impossible for much cotton that is too long to get into the card room at one time. No carder can get even work unless he mixes his cotton well and gets a good start.

Some carders point to a strong break for the yarn from their roving yet the work doesn't run very well on the spinning frames, warpers and looms. Why is it? It is because there are weak places in the yarn; this is often caused by single drawing. Sometimes when an end runs out on the drawing, the operator will stand back of the cans holding the shifter handle on the tight pulley and try to flip the end up. He may make two or three attempts before he is successful in getting the end through the rolls and all this time the drawing is making single work. This will make many yards of weak yarn when it gets to the spinning room. Ends will break down from this alone, but if they don't come down here, they may break at the warpers or in the looms. I always have my drawing operatives put the end up from the full can *before* they start the frame. Another way that weak ends are caused at the drawing is to put up an end that has been running single for a short while without pulling the single from the can in front. This single will probably run in the card room but how about the other parts of the mill?

The drawing is a simple process but it pays to watch it; "eternal vigilance" is the price of good card room work. A warp at the loom is no stronger than its weakest thread and single drawing makes many weak threads.

It is beneficial to the work throughout the plant to have reliable help on the drawing.

K. C. (CONN.)

Explanation of "Perle Twist"

ON PAGE 54 of the August issue of COTTON appeared an article by Fay H. Martin entitled "Reverse Twist on the Roving Frame" in which Mr. Martin mentioned "perle twist". The editors received an inquiry as to what is perle twist and what multiples are used in the single and ply yarn. When the inquiry was passed to Mr. Martin he replied as follows:

"Perle" is a trade name for knitting yarns; also, the words "pearl" and "pearl cotton" are used for the same material. The retail stores do not know much about "perle" as it is all packaged under different registered names, each manufacturer having his own, but it is all made the same way.

It is possible that the word "perle" was derived from "purl" which is a stitch in knitting. Ask most any woman about "pearl cotton" and the answer will

be that it is used for crocheting, knitting, and embroidering. It comes in balls or skeins, white, mercerized, and in all shades and colors. A popular number is 5s but it is made from 2s to 8s.

For 3s perle the processing is as follows:

1st process .56 hank roving on slubbers.
2nd process 1.70 hank roving on first intermediate.
3rd process 3.00 hank roving on roving frame, making a twist of 6⅛ turns per inch of "*Z*" or right twist.
4th process is flyer twisting, two ply, 4.70 turns per inch. To obtain the fourth process, change the roving frame to reverse twist and use the front line of rolls with no drafting.

The result is flyer twisted yarn of "*S*" or reverse twist and the trade name is perle.

Fay Martin Answers a Reader Regarding Amount of Roving on a Bobbin; and the Effect of Twist on Yarn Diameter

EDITOR COTTON:

In a letter from one of your subscribers, which you forwarded to me, the following questions were asked:

(*A*) "Is there a possible formula for arriving at the number of yards of roving of specified counts that a particular bobbin will hold?"

(*B*) "How much does the diameter or area of a yarn vary with the twist inserted?"

In answer to (*A*), I would say that it might be possible to work out a formula that would give the number of yards of a specified count of roving that are on a bobbin. At the present time the extent of my knowledge does not embody an answer, for there are so many variables in the making and winding of a bobbin of roving that it is almost an impossibility to synchronize a roving frame to the point where it would absolutely agree with a true mathematical formula. The most important variables are the cotton, twist, lay, tension and taper; speed and humidity also enter but to a lesser degree.

Take twist: The turns per inch can be figured, but the judgment of the carder must be used to determine whether there is the right amount of twist for good running work. His opinion is governed to a great extent by the cotton being run, its staple and grade, whether carded or combed.

When the twist has been determined the next step is the lay; here again judgment enters but not to the extent that it does on twist. However, it might be open or close or in between but whatever it is, it is variable.

After the lay comes the tension, for the tension cannot be adjusted until the lay has been determined (see my article in November, 1935, COTTON, Fig. 8).

Tension is one of the most elusive variables on the whole roving frame, for the errors from the cotton, twist, lay, flyers and the contour of the cones enter into and are combined in the tension. Cones must be so designed that they will be in true ratio from the top cone to the bottom cone, in relation to the diameter of the bobbin being wound at all points, and this means that the cones must not only be in true relation from top to bottom but must be in true ratio from end to end of their respective full lengths; and after the cones have been thus designed, the bottom cone must be modified at certain points to compensate for the pressure of the presser to obtain a perfect tension.

After the tension comes the taper. While the taper gear is seldom changed it is a factor in the number of yards upon a bobbin; some cottons require a steeper taper than other cottons, also combed cotton calls for a steeper taper than carded cotton, but combed cotton has more yards on a bobbin than a carded cotton bobbin has of the same hank.

The writer was called to a mill about one year ago, where they had four 10x5 slubbers on .75-hank roving, two of the slubbers were putting on more roving per bobbin than the other two, all running the same cotton and at the same speed. The twist, lay and tension gearing were alike on all, two were putting on 906 yards per bobbin and two were putting on 852 yards per bobbin. It had me puzzled for awhile, then I thought of the taper gear. Upon examination we found a different combination of taper gearing on two than there was on the other two. When the taper gear combination was changed the bobbins from all four frames contained the same number of yards.

While the above does not have a direct bearing on variables it shows that the taper gearing must be considered, for the taper gear is driven from the rack and the tension gear drives the rack.

To combine all of the foregoing variables and reduce them to a formula that would give the answer as to how many yards there would be on a given size bobbin of a specified hank looks to me like a job of no practical value.

If I were called upon to determine the number of yards upon a bobbin I would reel them off and count as I reeled.

(*B*) "How much does the diameter or area of a yarn vary with the twist inserted?"

I am not in a position to answer this question with any degree of certainty. It would require a large amount of research work to establish definitely how much yarn varied by the use of different twist multipliers when used on the same number or hank size.

I have worked on the subject to a certain extent to establish diameters for certain hank sizes for use in "lay per inch" but not for diameters from different multipliers.

FAY H. MARTIN.

Waterproofness is the name given to the quality in fabrics that tends to retard the passage of water; this is the antithesis of absorbency.

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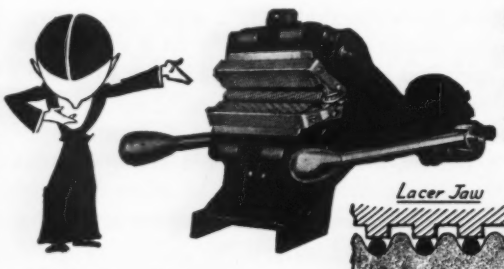

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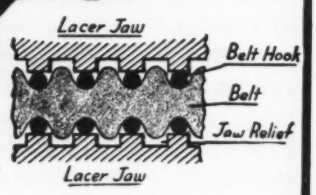

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Asbestos Products for the Textile Mills

NEWTON, NORTH CAROLINA

Inspection Sheets and Supply Requisitions for the Weave Room

EDITOR COTTON:

The men in our mill have been interested lately in the discussions you are publishing on "Courteous Relations With the Workers", "Training Loom Fixers and Weavers" and "Million-Dollar Tombstones". It seems to me that following these articles it is a good time to think about getting production once the help is trained.

We have an inspection sheet kept for each loom fixer's section that tells the number of times and reason for the cloth being cut. These sheets are consolidated at the end of the week and posted so that everyone may see it. By this method, a weaver or fixer may see that he is having too many oily places, thin places, threads out, etc., and can work to eliminate them. This method has been successfully applied in our plant for a long time.

When the sheet is posted, the operatives look at it and then try to improve their jobs without the foreman having to reprimand them. It is competitive and everyone endeavors to get the fewest cut marks.

Our loom fixers do not have to have a requisition to get supplies, but can go to the supply room and get any part they need and have it charged to their section by the attendant in the room. In this way, each fixer can overhaul his section and keep his job running without having to worry with securing an order for each new part. The cost sheets for the fixer's sections are posted every week and naturally a fixer doesn't want an excessive supply bill against him so he will work to this end.

CONTRIBUTOR NO. 6529

More on the Causes of Cut Shuttles

EDITOR COTTON:

You have been carrying discussions recently on the shuttle being cut on the bottom and a number of causes have been given. I agree with the authors of these articles but I wish to add to them by giving some of the "remote" causes for the shuttle being scarred in the loom.

When there is too much power on the pick, there is practically the same effect as having the harness too high. The shuttle will not be thrown straight and it is likely to enter the box with the nose of the shuttle striking first instead of sliding evenly. This will cause it to wear on the bottom.

If the front box plate is not straight or if the lugs on the box plate are not even it will cause this same defect. This condition will be found to exist on many new box plates. A good method of testing them is to lay them on a flat surface and line them by filing the lugs. Also, if the box plate is crooked it should be straightened. The front box plate should be just as perfectly aligned as the box back. If it is not perpendicular to the lay end plate, it will hold the shuttle at an angle which will cause it to be worn on the bottom.

The same applies to the binders; they must be true. Sometimes the hole for the binder bushing is off center and the binder is held at an angle which in turn holds the shuttle to one side. The only suggestion I have for this is to buy binders that are bored true.

So far as I know, the transfer hammer will not cause the shuttle to be cut on the bottom.

CONTRIBUTOR NO. 6535

Causes and Remedies of Pin-Holes in Jacquard Fabrics

EDITOR COTTON:

On page 87 of the July issue of COTTON, "CONTRIBUTOR NO. 6398" asks for causes and prevention of pin-holes in Jacquard fabrics. He describes a pin-hole as being caused by the filling kinking on the battery end of the loom about one or two inches from the temple, and snagging a warp end, leaving a hole in the cloth. He did not specify the construction of his cloth, that is, the sley, pick, number of ends per dent, or ground weave or figure weave of the cloth being made, all of which might have an effect on the cloth in question. I have had considerable experience on Jacquards and will endeavor to explain what I think would cause pin-holes numerically, and later explain what would remedy this trouble.

1. If the cloth being woven was drawn in the reed, 3, 4 or 5 threads in a dent, the threads might not separate freely when the shed was opened, thus the filling would be caught in the tangle, and when the reed came to the fell of the cloth, the filling would pass through the dent, not being beaten up by the reed until the shed changed the position of the threads on the following pick or picks, then the reed would force the filling against the fell of the cloth, but would leave a pin-hole as that part of the pick would be one or two picks later in being forced to the fell of the cloth.

2. It might also be caused by the shuttle rebounding slightly which would cause a kink to form in the filling about 2 inches from the temple.

3. It might also be caused by some of the harness lines being stretched on account of the great angle from the neck cord to comber board, thus causing some of the threads not to lift as high as the majority, thus not forming a clear shed.

4. Again, pin-holes might be caused by the shed not opening wide enough to separate the threads, and for a clear shed, or the shed closing too early.

Now, as to the preventives:

1. If the cloth in this case is 3, 4 or 5 threads in a dent, timing the shed so that it will close later would help to get the pick of filling laid against the former pick of filling more in line than would be the case if the shed closed earlier.

2. A lack of tension in the shuttle, such as fur, flannel or bristles, becoming worn or coming out of the shuttle, thus allowing the filling to come from the bobbin too freely, will cause such kinks. Too much power in throwing the shuttle across the loom into the shuttle box, or the check strap becoming worn or stretched or broken, will cause the filling to be kinked

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190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

191. The Bahnson Humiduct—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

193. Short Cuts to Power Transmission—72 page illustrated booklet containing all information needed in solving any ordinary belt transmission problem, informative material on belt joints and transmission practice and a quantity of useful tables and data. Flexible Steel Lacing Co., 4607 Lexington St., Chicago, Ill.

194. Accurately Checking Spindle Speed—A three page booklet describing the Strobotac, a tachometer operating on an entirely new principle for observing and measuring spindle speeds anywhere between 600 and 14,000 rpm. General Radio Co., 30 State St., Cambridge, Mass.

196. Economy of Diesel Engine Power—Bulletin No. 3030, 44 pages, illustrated, giving advantages of diesel power in industrial plants. Fairbanks, Morse & Co., Chicago, Ill.

197. Extra Life for Chain Link Fence—A folder telling about Bethanized Wire and explaining its advantages for mill and factory protection. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

198. The Perfect Loom Let-Off—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

204. Modern Shipping Boxes — Illustrating the modern tendency in interior construction and exterior design, this booklet shows how shipping boxes can be made outwardly colorful and attractive. Hinde & Dauch Paper Co., Sandusky, Ohio.

205. The Walker Method—8 page illustrated catalog describing the Walker method of quickly checking the efficiency of machinery. This improved method eliminates the losses resulting from improperly adjusted equipment. Walker Electrical Company, 936 Means St., Atlanta, Ga.

206. Moccasin Wall Card—Attractive, convenient new wall card listing over 500 plain finished bronze bushings in stock for immediate shipment. Also over 200 cored and solid bars made to S. A. E. 64 specification. Every mill should have one of these for handy reference. Moccasin Bushing Co., Chestnut St., Chattanooga, Tenn.

207. Reworking Spinning and Twister Rings—folder describing Gossett's patented method of reworking spinning and twister rings, making old, worn and discarded rings like new. Gossett Machine Works, Inc., Gastonia, N. C.

208. Cool Your Mill With Its Own Heat!—a ten page booklet which tells the story of the Parks Automatic Airchanger—a patented combination of forced air-change and direct humidification in balance—all under control of automatic humidity regulators. Ask for Bulletin 1135. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

209. Are You Being Kidded About Automatic Humidity Regulation—a direct comparison of the sensitivity, accuracy and reliability of a hygroscopic type of humidity regulator and the Park Spray Psychrostat—the first and only regulator to work on the psychrometric principle. Ask for Bulletin 835. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

210. Stretch Out Goodwill!—Let spinners spin and Parks Automatic Traveling Cleaners do the cleaning, mechanically, regularly. Eliminates slugs, gouts, bunches; greatly reduces breakage, loom stoppage, seconds; improves production in quality and quantity. Ask for Bulletin 236. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

213. Saco-Lowell Cotton Machinery—Twisting—a 36 page illustrated brochure explaining the company's twisters and parts, including the four basic type twisters, features of new construction and general notes on twisting. Production calculations and specifications are included. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56 page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

215. What Happens When You Ship a Package?—16 page illustrated booklet outlining the particular value of railway express and air express service and giving all details concerning pick-up, transportation and delivery. Railway Express Agency, Inc., 230 Park Ave., New York, N. Y.

216. Cutting Costs with Liquid Caustic Soda—a 72 page hand book, packed full of useful information on liquid caustic soda, including unloading and handling, properties of caustic soda and its equeous solutions, sampling and analysis. Of practical value to executives, buyers, chemists and operating men. Sent without obligation by writing on your business letterhead to the Mathieson Alkali Works, 60 East 42nd St., New York, N. Y.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

219. My Strap-Book by Doc Steelstrap—16 page illustrated catalog describing the hundreds of ways that Acme steel strap can be used to advantage in connection with paper boxes and wraps in making safe, economical shipping packages. The strap-book will convince you that Doc Steelstrap and his assistants do a thorough job of the packing and shipping business. Acme Steel Co., Chicago, Ill.

220. The American Monotractor—24-page booklet illustrating electric drives for cranes, hoists and carriers on MonoRail conveying systems. This book outlines some of the control features that make possible complete and semi-automatic transportation of heavy loads from process to process, building to building. The American MonoRail Co., Cleveland, Ohio.

221. A New Overhead Automatic Cleaner — Folder showing the new American MonoRail automatic cleaner in operation on MonoRail track circuit over spinning, warping, winding, twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Co., Cleveland, Ohio.

222. "Onyx Processing and Finishing Compounds"—A new 56 page catalog describing the entire line of processing and finishing compounds and covering every process on all types of fabrics. Also included is a comprehensive article on the subject, "The Importance of Accurate pH Control." Onyx Oil and Chemical Company, 15 Exchange Place, Jersey City, New Jersey.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers, as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

225. Houghto-Size AC — showing characteristics of a warp sizing compound must have for modern rayon fabrics, weakness of former sizes and the unusual advantages of Houghto-Size AC. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

226. Stainless and Heat Resisting Castings—folder illustrating and describing stainless steel castings for corrosion and heat resistance, and listing the various alloy castings available and their properties. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

227. Stainless Steel Valves and Pipe Fittings—complete illustrated catalog, together with price list, covering stainless steel valves and pipe fittings, giving all dimensional data, etc. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

229. Over 40 Million Tons—Attractively printed folder listing the producing companies which mine the high volatile coals which are specifically suited to particular industrial requirements. Appalachian Coals, Inc., Cincinnati, Ohio.

230. How to Profit With Air Express—attractive folder pointing out the advantages of air-rail express. Giving rates and time tables, this folder should be in the possession of every textile manufacturer. Railway Express Agency, Inc., New York, New York.

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakeo Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein, Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500, Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 175—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50 page buyers' guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on evener, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

CONTINUED ON PAGE 118

at that point. Some person might ask why I say, "the kink at that point." I will try to illustrate. If the standard for twist was 2½ times the square root of the count, it is possible that no kink would be made; if the standard for twist was 4 times the square root of the count, the kink might be made at the point stated; if the standard for twist was 6 times the square root of the count the kink might possibly be 4 to 8 inches from the temple. So, if it were possible to reduce the turns per inch in the filling, it might stop this kink. But if the goods being woven require this amount of twist, the other means have got to be taken to overcome the trouble.

3. Raising the comber board in the case of stretched harness lines might give a clearer shed at the sides as the harness lines from the Jacquard to the sides of the comber board are on more of an angle while in the center they hang straight from the Jacquard or on a very slight angle.

4. If the shed is not opening wide enough, make the shed larger if the warp yarn will stand it; and that will separate the warp threads, giving a clearer space in which to lay the filling. Make the groove in the side of the shuttle and box front larger so that the filling will not be pinched between the shuttle and the box front, which would cause the shuttle to rub a twisted snarl into the filling as the shuttle was coming out of the box.

CONTRIBUTOR No. 6416

Answers Old Questions for "Wash"

EDITOR COTTON:

I am submitting herewith an answer to the foolish question by "WASH" put to "A. T. G." on page 98 of the June, 1934, issue of COTTON and repeated on page 75 of the September, 1934, issue in his reply to "K. C."; the question is:

"When the bobbin cone is raised, the spindle and bobbin rotate at the same speed. Then, if one revolution of the differential sleeve will wind three inches of roving when the driving shaft is stopped, how many inches will be wound if the differential sleeve makes one revolution when the driving shaft is up to speed? This is figured out by the rule of three. In answering this question, be careful and not give the bobbin lead system a black eye like you have the textile school."

All that I can say right here is, I think that "WASH" gave himself a black eye, but, the old boy asked for it and I hope he can take it.

Now, "WASH", if you have a frame geared up where one revolution of the differential sleeve will only turn the bobbin one revolution when the driving shaft is stopped—I should like to see that frame—then you would have a bobbin of less than one inch in diameter in order to only wind three inches of roving. I have already written an article giving the figures for a jack shaft speed of 405 r.p.m., on an intermediate which gave a speed of 445 r.p.m. for this differential sleeve. The front roll circumference is 3.73 inches; circumference of bobbin is 5.50 inches. So $405 \div 445 = .91$ turns of the jack shaft for each revolution of the sleeve when the frame is up to speed on the first layer of roving on the bobbin.

So from this we get the following speeds on this frame for each turn of the differential sleeve:

$$\frac{.91 \times 42 \times 44}{35 \times 23} = 2.08817 \text{ r.p.m. of spindles.}$$

$$\frac{.91 \times 24 \times 71}{39 \times 130} = .30584 \text{ r.p.m. of front roll.}$$

$.30584 \times 3.73 = 1.14078$ inches delivered by front roll.

$$\frac{1 \times 42 \times 44}{23 \times 35} = 2.29565 \text{ r.p.m. of bobbin.}$$

This is one revolution of the sleeve to .91 revolution of jack shaft. $2.29565 - 2.08817 = .20748$ r.p.m. of bobbin in excess of spindle. $.20748 \times 5.50 = 1.14114$ inches of roving. This excess speed will wind for 1 revolution of the differential sleeve with jack shaft to what it figures for the delivery of the front roll.

Also with this sleeve gear making 445 r.p.m., with the jack shaft up to speed from the figures here given it will wind $445 \times 1.14078 = 507.64$ inches roving as compared to what we figured the front roll to deliver for one revolution of this sleeve. $445 \times 1.14114 = 507.80$ inches roving as compared to what we figured the 1 revolution to wind on the bobbin. In the other problem we figured it to wind 507.62 inches of roving when up to speed, so you see I can't be far wrong on these figures given here.

This same frame with jack shaft stopped will wind for each revolution of this sleeve gear

$2.29565 \times 5.50 = 12.626$ inches of roving, which is far from 3 inches.

$2.08817 \div 1.14078 = 1.83$ turns per inch.

I am still waiting to see "WASH" figure this by his rule of three and using what he gave to figure on, namely, 1, 3, stopped, and speeded.

The foregoing figures are taken from a former article on an intermediate having a 42-tooth gear on jack shaft driving spindles, 24-tooth twist gear and a 42-tooth differential sleeve gear driving bobbin shaft, with jack shaft making 405 r.p.m. and sleeve gear making 445 r.p.m. for first layer of bobbin.

I should like to know if "WASH" has ever seen a twister rigged up with slubber stands and rolls using drawing, and drafting same and twisting into yarn? I did one this way once and ran both sides of it. Of course I could not run every end on it as some of the rolls did not come exactly right for the spindles on it.

I think the fact that some of these textile graduates have passed "WASH" on the way and gone so far ahead of him is one reason he is so down on them. There are good and bad things in every walk of life, and I think the textile graduate who has character and wishes to rise, has a far better chance to make good as an overseer or superintendent after gaining the practical as well as the theoretical training than has the man who already knows it all—or so he thinks. If a man is in that class he is dead and doesn't know it. I would advise the fellows to keep an open mind and learn new and better ways of doing things, if possible, as mills are in need of such men now. The graduates of today will be the overseers and managers of tomorrow.

CONTRIBUTOR No. 6570

HELPFUL BOOKLETS FREE...

Continued from Page 116

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

124. New Condensed Catalog on Ball Bearings and Power Transmission Units—Combines all of the information and the industrial uses of radial ball bearings as well as the Fafnir power transmission line of wide inner ring and ball bearings. It gives complete information, interchangeability tables, dimensions, prices, etc. Fafnir Bearing Company, New Britain, Conn.

127. Vim Short-Center Drive with Vim Tred Leather Belting.—16 page booklet outlining the special requirements of belts for short-center drives and the proper adjustment to give the highest efficiency. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

130. Three New Textile Scouring Agents—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

131. Houghton's Leathers for the Textile Industry—This valuable handbook contains 88 pages of data on the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. STA-PUT Lubricants—A brief description of an entirely new type of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141—V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts and belt and sheave list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

147. Let's "CAN" The Oil Can—describing permanently sealed bearings for life, and for higher speeds and temperatures single seal ball bearings which have to be lubricated only from one to three years. New Departure Mfg. Co., Bristol, Conn.

150. Engineering Data Book on Mechanical Rubber Goods—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152—Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154—Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drives. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

166. Better Cones The World Over—Bulletin describing the Universal No. 50 Winder for silk and rayon. Universal Winding Company, 95 South Street, Boston, Massachusetts.

168—The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

169. Tube-Tex High Speed Steamer and Finisher—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayons, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are furnished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—Showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

184. Speed Control Handbook T-35—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

COTTON, Grant Bldg., Atlanta, Ga.

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SHIPMENTS of all types of hosiery were 5.8 per cent greater for the first half of 1936 than for the first half of 1935. But shipments of women's seamless hosiery showed the greatest gain—a 13.6 per cent increase. Are you taking advantage of this demand? The MODEL K SPIRAL GUSSETOE MACHINE enables you to meet it efficiently and economically with better-fitting, smarter-looking stockings that possess exclusive selling features—the welt of greater elasticity, the non-slip, improved "square" heel, and the famous Gussetoe, an actual knit-in gusset. These are features that mean sales, savings and profits . . . Why not use the *modern* K to give your line impetus in the increasingly active seamless field?

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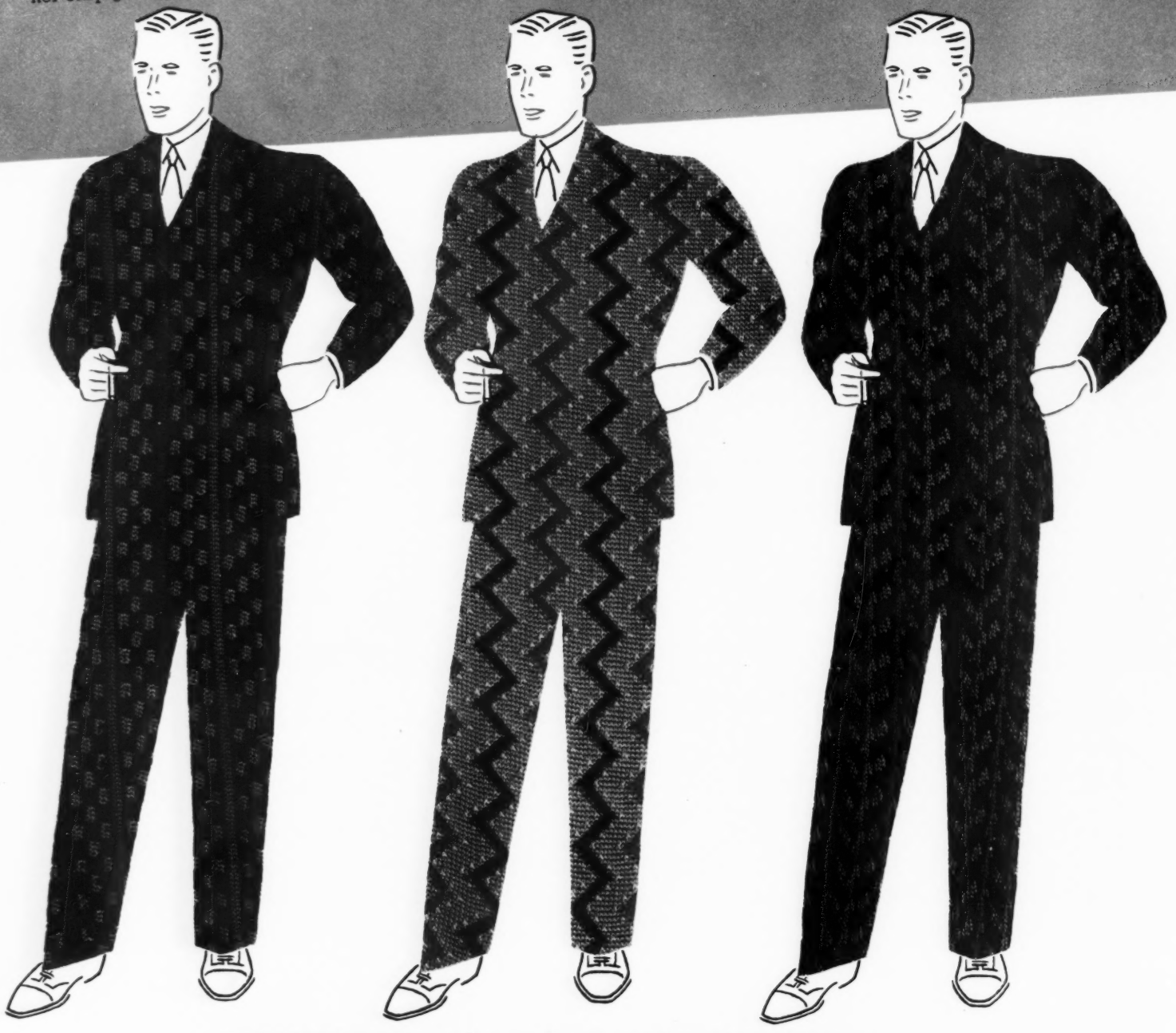
"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

MOVE INTO THE MONEY MARKET WITH

The Standard 80-W Shog Machine

FOR YEARS knitters have felt the need of a machine that would enable them to duplicate, economically, the exclusive designs of costly imported men's half hose. The Standard 80-W Shog Machine is the answer. This machine not only greatly enlarges your pattern scope but makes it possible for you to create designs that command the attention of customers who formerly purchased only high priced importations. Why not move into the money market for men's half hose? The time is ripe, the business is there . . . and the machine is available to get that very profitable business.



STANDARD-TRUMP

BROS. MACHINE CO., INC.

366 BROADWAY NEW YORK, N. Y.

STANDARD TRUMP

ESTABLISHED 1872

Modern Lighting is a Feature of the New Chipman-LaCrosse Hendersonville Mill

By a Member of the Staff

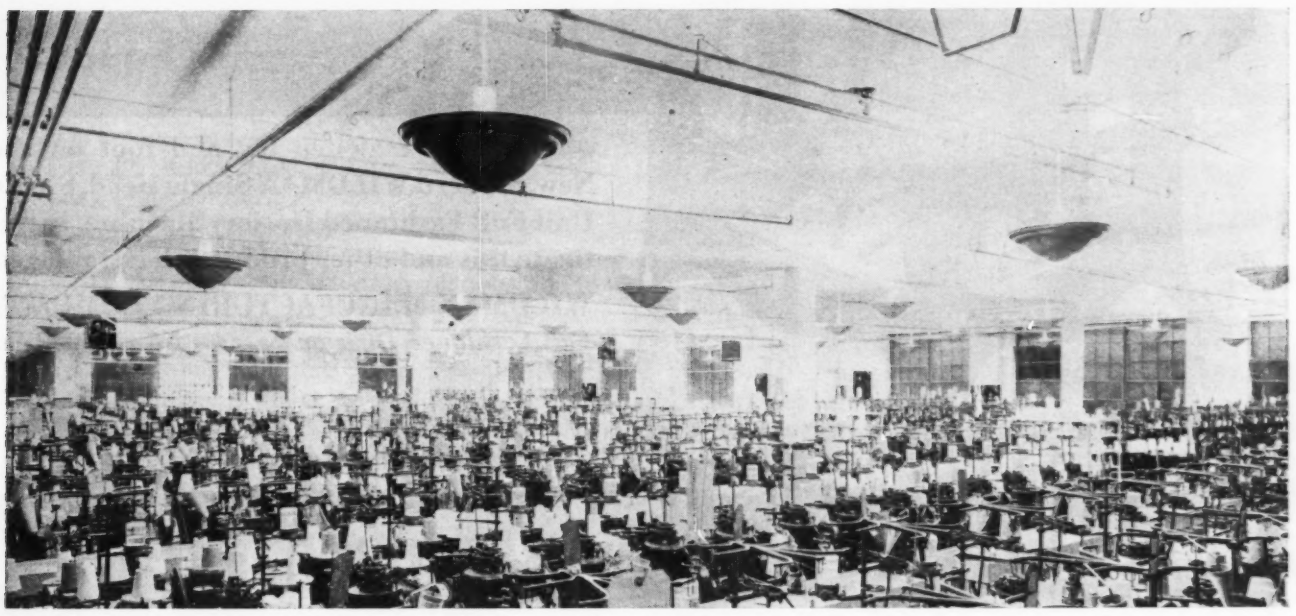
MORE and more, textile executives are giving consideration to modern lighting for their plants, as a means of increasing efficiency and comfort for their employees, and consequent improvement in efficiency and quality of product. This story shows by illustration and text how one progressive southern knitting mill employed the latest knowledge and practice in providing "better light and better sight" in its new North Carolina mill .

CARRYING the old adage that "seeing is believing" one step further, the Chipman-LaCrosse Hosiery Mills Company, Hendersonville, N. C., have placed at the disposal of their employees the services of an optometrist. Once a week this doctor visits the plant and anyone wishing to have an eye examination may do so at no expense to himself. If the examination shows that the employee needs glasses, the company will purchase them and be reimbursed by the employee within a three-months period. Having the eyes of the employees tested, to be done at the request of the employee, shows whether or not the operative is particularly suited for certain types of hosiery mill work. For instance, some operatives may be particularly suited for looping and seaming but may have eyes that are unfit for other work unless they are corrected by glasses. The room for testing the workers' eyes is located in the mill.

But good eyes are only part of the process of good seeing. There must be adequate lighting conditions. An executive of the Chipman-LaCrosse mill bought a floor lamp for use in his home. It was one of the indirect lighting effect types. Through nightly use of the lamp he became so impressed with the illumination that he thought it would be to the advantage of his employees and his mill if the new plant were equipped in like manner.

The executive realized that uniform illumination could not be secured through guess-work so he enlisted the aid of a lighting engineer of the Duke Power Company. This engineer designed a system of indirect lighting for the entire new plant and it was subsequently installed. This type of lighting in a hosiery mill is a departure from the usual lighting practice and led into a discussion of various lighting systems. In this discussion concerning the individual advantages of an indirect system as well as a system using glassteel or combination high-intensity mercury vapor and incandescent units, the executive insisted that the same type of lighting that he was experiencing in his home was exactly what he wanted.

In order to gain first-hand information as to the seeing task involved in the various operations of manufacturing hosiery, a visit was made to the old plant for observation purposes. Each major operation was closely checked with the aid of an illuminometer and a Sight Meter. The operators in each case were provided with a variable intensity of both direct and in-



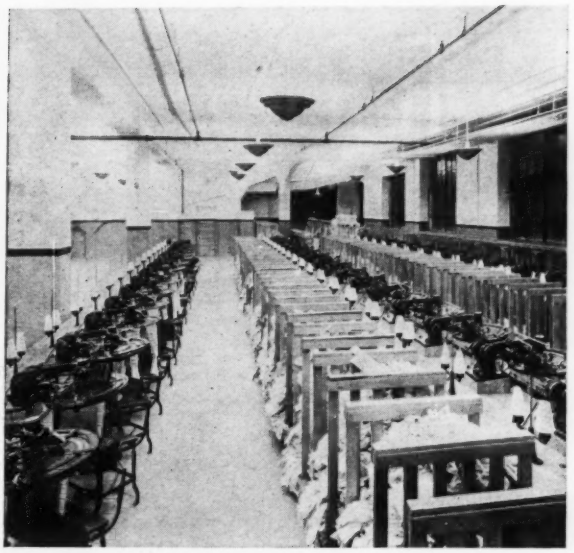
This view of the knitting room at the Chipman-LaCrosse Hosiery Mill at Hendersonville illustrates the modern and efficient lighting system, which maintains 25-foot candle, uniform, shadowless illumination in this department.

— perfectly matched leg and foot on the New, Modern WILDMAN Single Head, Single Unit Full Fashioned Hosiery Machine. Investigate this and other production advantages.

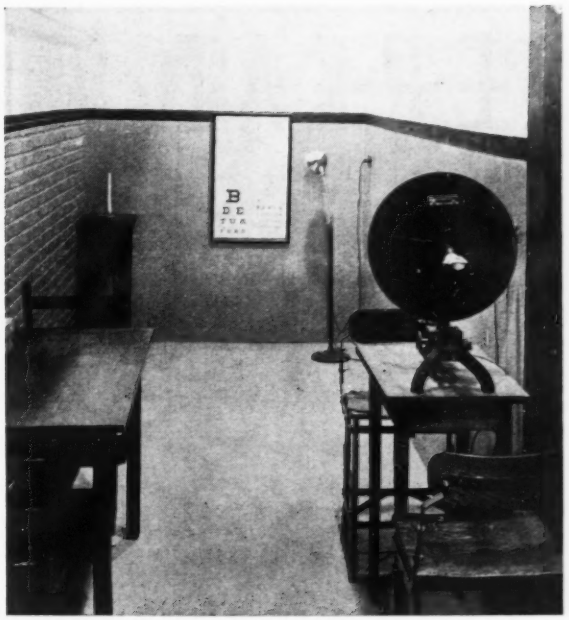
WILDMAN MANUFACTURING COMPANY
Full Fashioned Division *Norristown, Pa.*

The New

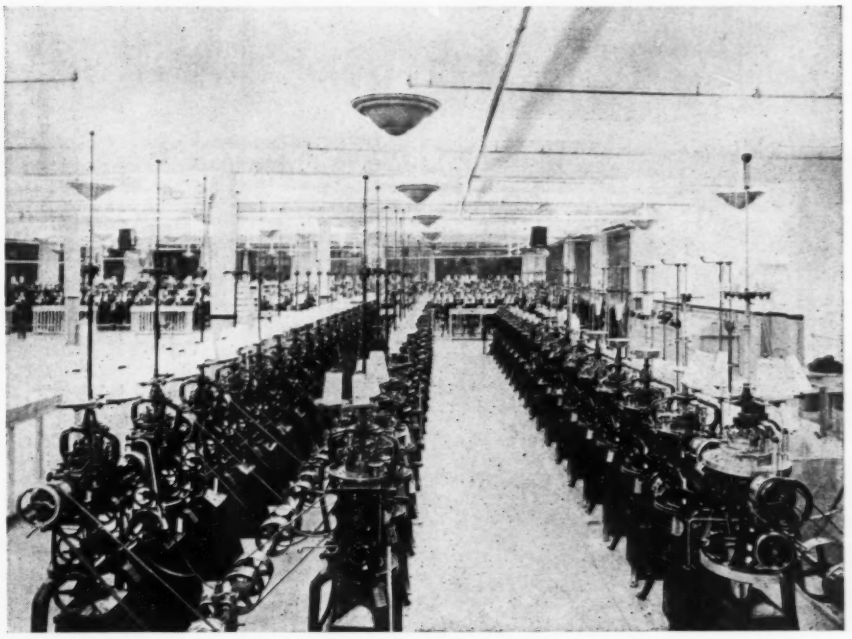
WILDMAN SINGLE HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE



The loopers have a 28-foot candle intensity, with no glare or shadows . . . . .



A view of the optical examination room



The ribbers also are well arranged and adequately lighted

direct illumination from demonstration units and they were requested to select the type and intensity which they felt was best suited to make their seeing task easy. In almost every case the operators chose the indirect method and selected approximately 25 foot candles of illumination. The operators at the looper machines rejected the direct lighting system because of the extreme glare from the polished surfaces of the machine and the needles*. In addition to the glare, the direct light had to be placed at an exact position to keep the shadows of their rapidly moving fingers away from the needles. The application in direct light eliminated both glare and shadows from the operation.

The new plant is constructed of re-inforced concrete and brick, and is so designed as to suit the major requirements of indirect lighting.

The system of lighting consists of 120 totally indirect units, each equipped with a 500-watt inside-frosted lamp. The ceiling and side walls are finished in flat white from which the maximum reflected light is secured.

In the knitting department the uniform, shadowless illumination measures 25 foot candles. It is obvious that this level of high-quality illumination reduces muscular tension and eye fatigue to a minimum. The looper section, where glare and shadows greatly concern the welfare of the operator, has an average of 28 foot candles. Seaming and inspecting departments demand the most exacting illumination and the workers in these departments are provided with 30 foot candles to make the seeing task one of ease and comfort. In addition to the general lighting, special stack-light units are used in the stock room, each equipped with a 100-watt lamp.

After the installation of the new lighting system, a check was made to ascertain the exact load involved. Considering only the 120 indirect units totalling 60 kw on approximately 80 hp, the lighting load was found to exceed the power load, which was 75 hp.

The new plant of the Chipman-LaCrosse Hosiery Mills Company is a splendid example of modern industrial lighting and is probably the first indirect lighting job in a hosiery mill.

*A discussion of this subject entitled "Lighting Effects and 'Nerves'" appeared on page 101 of the August, 1936, issue of COTTON.

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NOTHING tells the story of the success of the new Union Special LOCKSTITCH any better than the steadily growing stream of repeat orders from manufacturers who have tried it and now know what this machine can do ..... Join these users and we believe you too will quickly discover why it is to your advantage to come back for more!
UNION SPECIAL MACHINE COMPANY,
400 N. FRANKLIN STREET, CHICAGO, ILL.

Causes of Loose Lines in Seamless Hosiery

This contributor suggests an experiment, which if performed, will be of interest to all seamless knitters . . . . . .

EDITOR COTTON:

On page 137 of the November issue of COTTON, "CONTRIBUTOR NO. 6585" states that he is having a considerable amount of trouble with loose lines appearing in hosiery produced on 280-needle Scott & Williams Model K machines. He says that after lining up needles and sinkers he is able to make hose that are fairly well rid of all loose wales, but after running a machine for two or three days the loose wales often re-appear. He also asks could the dial jacks have anything to do with the loose lines. Finally he states that one of his machine fixers claims that jack dials never go off center while another says they do and he wants to line up jack dials periodically. I will attempt to answer his questions in the order in which they appear.

Loose Wales

Loose wales covering a space of 3 to 5 or 6 needles in seamless hosiery have always been and perhaps will continue to be a menace. They are sometimes found in new machines but more often in old machines which have seen a lot of service. The writer still hopes to see the day when this particular trouble can be positively eliminated but some radical changes in seamless machine building will be necessary. "CONTRIBUTOR NO. 6585" says that after lining up needles and sinkers he is able to make a stocking which is fairly well rid of loose wales but they often re-appear after a few days' run. This condition is not unusual, other mills are having the same trouble.

There are a number of things which can cause loose wales directly or indirectly, very often a combination of troubles or mechanical defects, improper adjustments and the like form the underlying cause for loose wales or streaks as they are often called. I gather from the contributor's remarks that the loose wales re-appear in the same places in the stocking where they were *before* he lined up needles and sinkers; however, he may mean that loose wales appear in other places. If they re-appear in the same places it would obviously indicate that the trouble was not being caused entirely by needles and sinkers. As stated previously, loose wales are a menace, especially in fine gauge silk numbers, and frankly, at times they are difficult to eliminate. I do not know of any sure cure remedies but I will attempt to throw some light on the subject. As a rule loose wales are caused by one or more of the following: needles, sinkers, inside sinker rings, outside sinker rings, stitch cams, and needle cylinders.

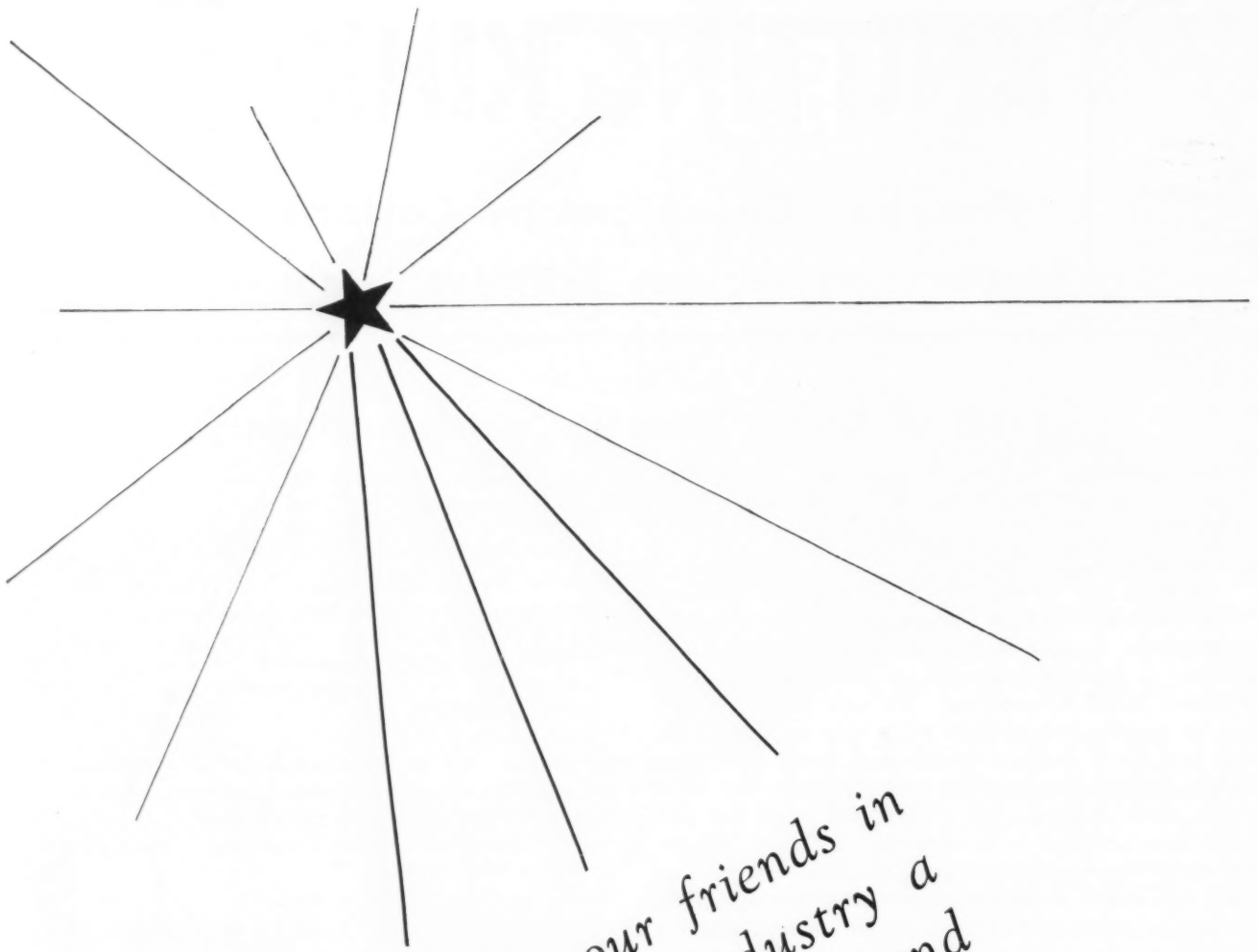
WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Needles

Careful attention should be paid to keeping needles straight—that is, in a perfect circle and properly spaced. Uniform needle friction is vitally important; *use needles as they come from the manufacturer;* the friction bend is *machine-made* and therefore *uniform,* hand bending to increase or decrease friction will invite trouble. Hooks spread open caused by load-ups, bent or stiff latches, bent butts, and damaged butts caused by jam-ups are some of the needle troubles which cause loose wales.

Also, while we are on the subject of needles, let us not forget that a thorough and regular needle lubricating schedule is essential. Although using soapstone, tallow, cup grease or vaseline on needle butts may bring temporary relief from some troubles, these substances are poor lubricants, they become gummy and in time form grit between the cylinder walls unless they are thoroughly flushed out. A good grade of needle oil with the proper viscosity will supply the



Wishing our friends in the Textile Industry a Merry Christmas and a Happy New Year.

Robert L. Boger

President
BOGER & CRAWFORD
Philadelphia

necessary lubrication and in addition help to flush out grit, old oil, and metallic pigment. Thorough and regular lubrication will help prevent loose wales by combating wear on needles, sinkers, cams, etc.

Sinkers

Sinkers, like the other machine parts, are bound to wear; worn sinkers in many cases are directly responsible for loose wales because they are apt to wear unevenly at different places. Some yarns are harder on sinkers than others. Pure silk, for example, which must be knit tight to produce good merchandise, will cause gaps to be worn into the knitting ledge of the sinkers in much less time than mercerized yarn. Gaps in the knitting ledge of sinkers can cause uneven knitting or loose wales. Bent sinkers caused by needle jam-ups, bent or worn sinker butts, worn sinker cams, and improper sinker cam adjustments can all contribute directly or indirectly to loose wales. One of the most common mistakes made by machine fixers in their daily work, which has a great deal to do with loose wales and streaky fabric, is the practice of using *new sinkers* to replace those which must be removed for any reason. In other words, *mixing new sinkers with old sinkers* in a machine in which sinkers have not been renewed for a long time is bad practice. The only way to overcome this is to put all new sinkers in one machine or more and use the old sinkers that are fit for further use as replacements and thus avoid mixing new and used sinkers.

Inside and Outside Sinker Rings

Inside sinker rings have a great deal to do with knitting because they support and guide the sinkers and help to control the needles at the knitting point. There are but a few things that can happen to an inside sinker ring which will cause loose wales, these are worn sinker slots, bent or damaged slot separating walls, packed lint forming in the bottom of the sinker slot, needle separating prongs (on style No. 6 sinker rings) becoming bent, worn, damaged or broken, and sinker rings not fitting perfectly level on the top of the cylinder. The latter will, of course, cause loose and tight places in the fabric over a greater area than 6 or 8 wales. A thorough and regular cleaning of sinker rings will help a good bit and when sinker rings become worn or damaged, it will be cheaper to replace them than to produce merchandise full of unsightly lines and streaks. Regular lubrication will help increase the useful life of an inside sinker ring.

There is little to be said about outside sinker rings insofar as loose wales are concerned. Make sure that the outside sinker ring rests level on the cylinder and that its circumferential position is correct. Badly worn and especially broken sinker slot separations will cause loose wales.

Stitch Cams

Defective stitch cams cause much of the common every-day troubles which confront the machine fixer and to say that they have something to do with loose wales or streaks is putting it mildly. In some cases defective stitch cams have everything to do with this particular trouble, and when we think of stitch cams we must include the side cams (usually called end cams or raise cams by machine fixers). Absolute needle control is necessary and in order to assure this, stitch cams and side cams must be kept in first class condition. (Some useful information concerning stitch cams and side cams may be found in COTTON, May, 1933, pages 90 and 91). Stitch cams should be free from gaps or rough places; concaves must be right and lower points must not be blunt, especially on fine gauge machines like those being used by "CONTRIBUTOR No. 6585". Constant re-polishing tends to increase the pitch of stitch cams; after being re-polished several times, new cams will be a profitable investment.

Side cams must also be free from gaps or rough places and it is important that they raise the needles immediately after the butts pass the lower point of the stitch cam. As a rule it is not difficult to find a half-dozen machines in any line where the side cams lack 1/16-inch or more from being *in* far enough to raise the needles as they should. Yes, loose wales can be caused by stitch cams and side cams.

Needle Cylinders

It is not difficult for the machine fixer to determine whether or not a case of loose wales is being caused by the needle cylinder. Loose, damaged, bent or otherwise defective cylinder walls are not hard to find and every fixer knows they spell trouble of various kinds, including streaks or uneven knitting. Often these various troubles are brought about by a needle cylinder not being properly repaired. Some mills have the necessary equipment to do a first class repair job on a cylinder, others would profit by having their cylinders repaired by the machine builders. Unfortunately there is no happy medium as far as the condition of a needle cylinder is concerned, it is either in good shape or it is not. The machine fixer can do much toward keeping needle cylinders in good shape by attending to their lubrication faithfully, by straightening bent walls carefully, and by checking over his machines when trouble arises to prevent a repetition of jam-ups, which are, after all, the underlying cause for all cylinder damage.

The Dial Jacks

The second question asked by "CONTRIBUTOR No. 6585" is "Could the dial jacks have anything to do with loose lines?" The answer to this is yes but the connection is indirect because the dial jacks have nothing to do with the actual knitting or forming of stitches. If for any reason the dial jacks should come in contact with the needles and bend them, loose lines might be caused, such cases are rare, for, if the dial jacks were out of line enough to bend needles enough to cause loose lines, hem trouble would result. In correcting whatever might cause the dial jacks to bend needles and give transfer trouble, the possibility of loose lines from this source would automatically be eliminated.

The third question asked concerning whether or not dial jacks go off center is somewhat amusing; my opinion is that both of his machine fixers are ex-

tremists to the *n*th degree. The term "dial off center" is understood by anyone familiar with a Model K machine, HH or RI included, to mean that the dial does not line up perfectly central with the cylinder needles. When a Model K machine is assembled by the machine builder, the dial is centered with the cylinder as nearly perfect as it is humanly and mechanically possible because the machine builders know that the accurate location of the dial and crossbar assembly is important. After careful inspection and testing, the machine is sent to the mill and runs satisfactory for a long time. Then comes a day when dial jacks begin to break or become bent by coming in contact with the needles during the hem makeup or transfer. The fixer straightens all dial jacks and needles and checks over various adjustments and finds them correct. He tests the machine again but finds that part of the dial jacks come out perfectly between the cylinder needles during the makeup and/or transfer; the remaining dial jacks strike the needles. He knows right off that something is wrong so he removes the dial and dial spindle and tests the crossbar with a dial centering jig and he finds that the crossbar hole will not line up perfectly with the hole in the centering jig, or in the fixer's parlance, *the dial is out of center.* The crossbar is in its original position, dowel pins are in place, the dial spindle is all right, the spindle hole in the crossbar is not worn, the crossbar simply could not move, but the testing jig and the bent dial jacks and needles say the dial is out of center. So the fixer proceeds to re-center the crossbar in the usual manner and re-time the dial and when the job is done the old Model K takes off without a hitch. Now the fixer that claims dials never get out of center may mean that the dial and crossbar cannot move from their original position, all of which is true but he may be willing to admit that the cylinder and needles may get out of line with the dial. Yes, dials do get out of center; they have been doing it for quite a number of years, but it does not happen periodically, so there is no need of lining them up periodically.

Now, how do dials get out of center? Some fixers claim that crossbars and latch rings become warped in time and throw the dial out of line with the cylinder both vertically and horizontally. Improper replacement of cylinder walls causing the cylinder to have high or low places in its outside circle might be at fault. Replacement of various cams in the cam ring which are slightly thicker than the old cam removed, worn gear rings, etc., in fact there are quite a number of things which could cause the cylinder and dial to get out of line with each other. The fixer's job is to ask himself *how* and *why*, then dig down deep; re-centering the dial should be the last resort.

"CONTRIBUTOR NO. 6585" is in a position where he can render some real service to readers or start an argument; I suggest that he have the fixer who says dials do get out of center find a machine which shows that the dial is off center by testing it with a centering jig, then let the man that says dials never go off center fix the machine without re-centering the dial. I am sure someone would learn something and I would be much interested in seeing a report on the outcome of this experiment in the columns of COTTON.

CONTRIBUTOR NO. 6595

Preventing Loops on Inside Selvage on Cotton-Sole Full-Fashioned

EDITOR COTTON:

I note on page 147 of the May issue of COTTON that "CONTRIBUTOR NO. 6492" is having trouble with throwing loops in the inside selvage of the foot on a cotton sole style of full-fashioned hosiery, and would like information on how he can overcome this.

He states that his machines are of the long needle type. My experience has been that on this type of machine there is a tendency to throw loops into the silk at the inside selvage point when one makes a cotton sole construction. I have, however, always overcome this trouble by making the following adjustments and changes: First, I always use the short nose sinkers and a split divider at the point where the inside selvage is made. This helps more than anything else to overcome the throwing of loops.

I also use a finer gauge tube in the cotton sole carriers. In other words, on a 42-gauge footer, I use a 45-gauge tube in the sole carriers. The reason I do this is that by using a finer tube I have more freedom in setting the carriers between the sinkers, and instead of setting the carriers so that they are in the center between two sinkers on the inside selvage, I set the carriers so that they are slightly to the right or left of the space between two sinkers.

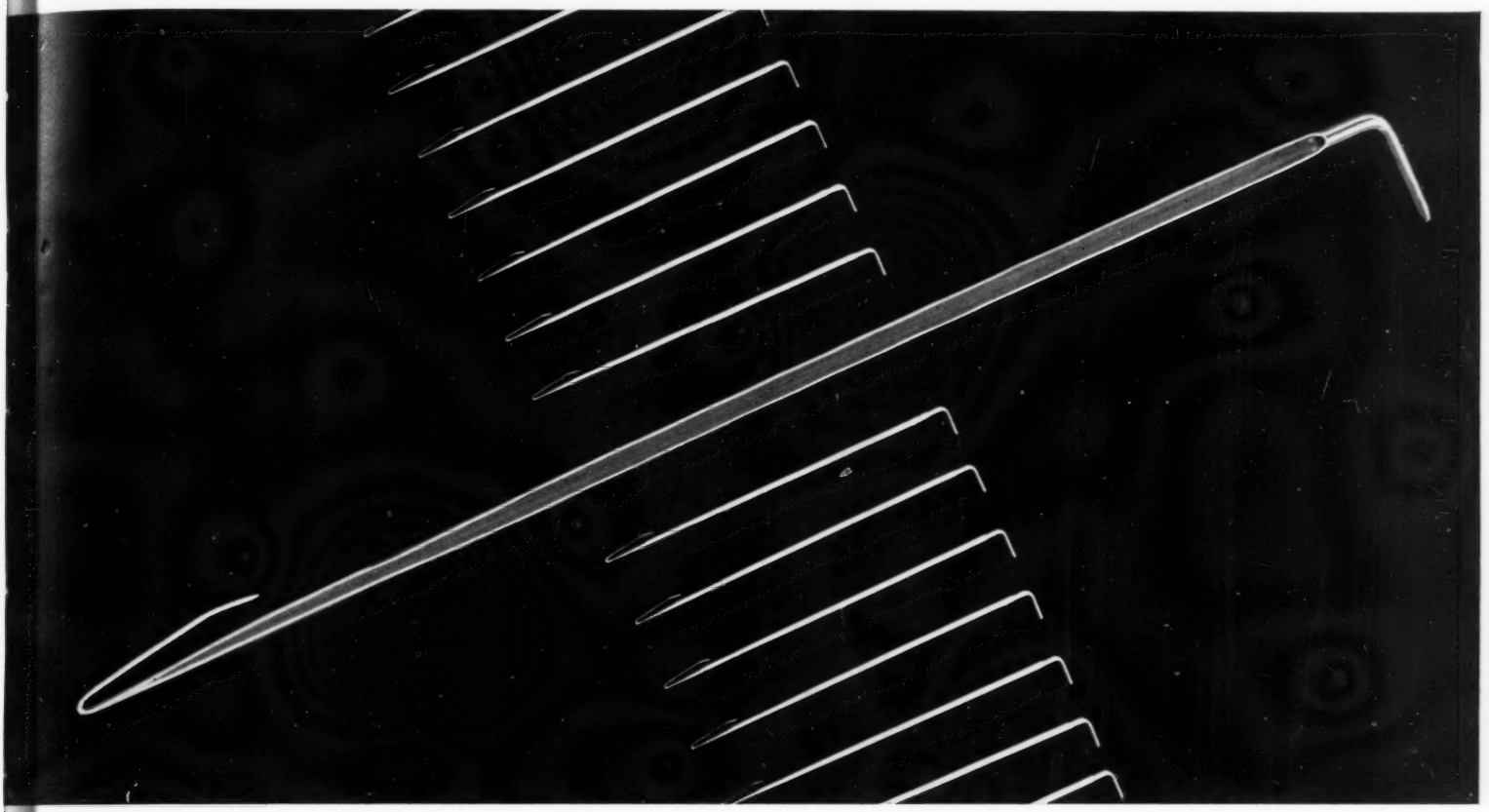
By having a smaller carrier tube in the sole carrier, we have a better chance to set the carrier so as to prevent the throwing of loops. Tension adjustment must also be taken care of to prevent this trouble. Also I find it is advisable not to have too much pressure on the snappers as this has a tendency to hold the thread too firmly.

Instead of putting pressure on the snapper, we set the felts so that they give more tension. We have also found that by using a heavier tension ring or using two brass rings instead of one, we help to prevent loops.

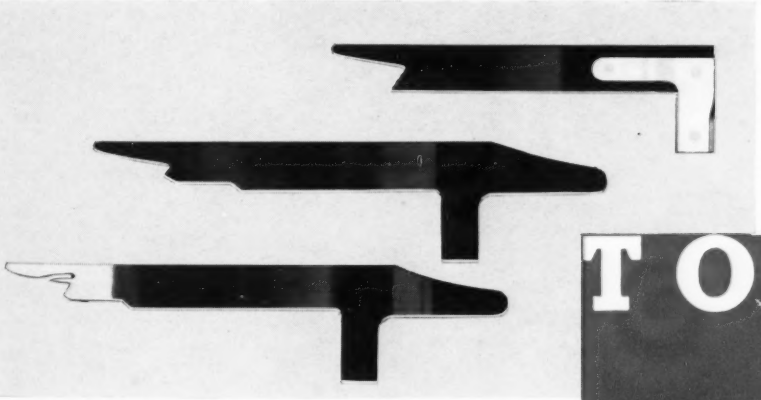
When making a cotton sole style where the heel is quite heavy, the footer usually has excessive needle breakage when starting up after the legs have been transferred. To overcome this breakage most mills put on more press by adjusting the presser cam or roller. We have found, however, that the more press we give the greater is the danger of throwing loops; therefore, we try to regulate the press so we can stop the needle breakage and at the same time not have it interfere with making good selvages.

I also find that on some machines by raising the selvage bit on the needle bar cam, we help prevent loops.

The frictions of course must be watched at all times to see that they are not too loose or too tight. A loose friction will cause the carriers to rebound and this will throw loops and a tight friction will prevent the carrier rods from moving freely and this will also result in throwing loops. The contributor states that he is using 50s/3 yarn for his sole construction, and of course this size of yarn



The smoother your needles are finished, the more evenly the threads glide across their surfaces, the more uniform the stitches they produce. Good knitters know the value of fine finish ...and Torrington assures it—by applying *machine* precision in the production of Torrington needles. The Torrington machine-made method means not only that the steel is smoother but less subject to *variation* in smoothness. If more accurate and uniform knitting is your aim, let Torrington needles and sinkers—made by machines throughout—help you to achieve it!



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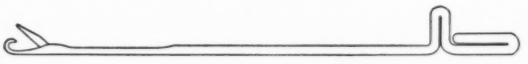
AMERICA is fast becoming ski conscious. Every year more and more enthusiasts are taking to the snow trails. And every year they grow more particular about the costumes they wear. Smartness is a requisite...and ability to give long service must be there, too. The knitting of ski-suits calls for good needles...needles that do good work in heavy materials . . . Torrington needles! Torringtons are machine-made. That's why their exceptionally smooth finish is as uniform as the fine temper and sturdiness for which they are famous. These are qualities that lead to better, smoother, more uniformly knitted fabrics. Use Torringtons. You'll find they will go a long way towards helping you turn out merchandise that inspires a customer to say, "I'll say it's smart . . . and it wears well, too."

There's a Torrington needle for this type of knitting and every type of knitting.



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is quite heavy and requires considerable rocker adjustment. I recommend that he use as little rocker as possible; this sometimes helps to prevent the throwing of loops.

C. H. BAXTER

Timing Dyebaths

EDITOR COTTON:

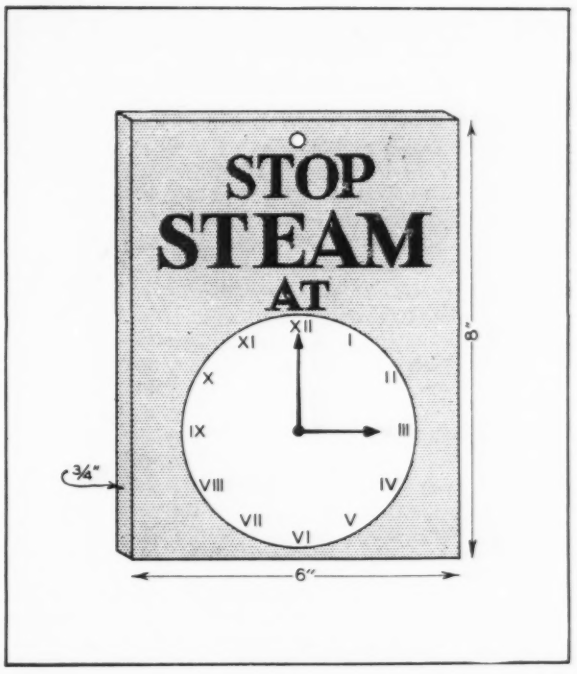
The question "CONTRIBUTOR NO. 6494" asks of the readers of COTTON on page 143 of the May issue on the subject of timing dyebaths, is one that has troubled me at two different times. The first time I found a satisfactory solution, the second time I adopted the first solution and made improvements that were needed for the occasion.

Several years ago, while I was in charge of dyeing for a spun silk factory, I was put in charge of boiling-off the waste silk that was used in the mill. The boiling-off was done in six round, open tubs where 150 pounds of silk waste were de-gummed in each one. The time required for de-gumming at that time was two hours and it was hard to keep track of the time on every tub, as only two men were needed to operate the whole set, and it was especially hard when the tubs were boiling at the same time.

We had the carpenter cut six boards, 8 x 6 inches wide and paint them white. When dry, a circle 4½ inches in diameter was drawn on the lower part of the board with black paint and the 12 hours were stenciled around the circle, as on the face of a clock. Then a small bolt was inserted in the center to hold two strips of sheet-iron fashioned like the hands of the clock and they were fastened to the bolt with a thumbscrew. On the top of the board printed in black was "Stop Steam At", and I instructed the men to point the hand of the clock to the exact time the steam valve had to be closed. Having hung one of these clocks in front of each tub the worry of having a tub boil too long or too short a time was eliminated.

In skein dyeing by hand, no recording of time is necessary, except on certain occasions, as when loading with tannic acid or sumac for tanning yarn for resisting, chroming, etc. We usually say five turns or seven turns and the operatives are always on the job any way working on the lot. In dyeing piece goods we usually say three ends or five ends, meaning when the ends of the piece come into view. On dyeing machines with continuous motion, however, recording of time is a necessity, and it is quite remarkable that the machine manufacturers have failed to provide a hand clock, or some other device, to register the time to stop boiling, add some chemical to the bath, take a sample, etc. If there is anything of that kind at this time I am not aware of it. Evidently there isn't, or the correspondent would not ask the readers of COTTON to help him in his predicament.

When I had my first job in a hosiery dyehouse there was only one machine in the plant. That was easy to handle by watching the clock on the wall for the several additions and operations. When the work increased and more dyeing machines were added it became increasingly difficult to keep track of the time, and several unavoidable mishaps occurred, until



I remembered the hand clock in the spun silk factory. I fashioned one with a piece of pasteboard and showed it to the manager, explaining why it was a necessary addition and that every machine should have one. He ordered a dozen made.

In this case, however, the caption "Stop Steam At" was not enough. The clock had to show that, but besides it had to tell when to add salt, acid or other chemicals, take a sample, when to boil again or anything the lot needed at the time, pointed by the face-clock. We added a slot with an open face on top of the clock, in which to slide pasteboard cards on which was written the names of the chemicals, or what was to be done to the lot processing in the machine.

When a lot is started, the operator stays with it while he adds the necessary ingredients and the bath comes to the boil. Before he leaves the machine he puts the card in the slot showing what to do next or what chemical to add and then turns the clock hands to point at the time it has to be done. In this way if he should be absent, or forget when that time comes, anyone around can see that that particular thing is not being taken care of, knows what is to be done and does it, or calls the operator.

Construction of Clocks

No matter how many machines are on the floor of the dyehouse and running at the same time, the dyer going through it, by looking at the face of the clock can see at a glance if everything is progressing according to instructions. If the hands of a clock on a running machine point to a time earlier than on his watch, or the clock on the wall, he will know at once that the lot is being neglected and needs attention. It may be that the operation has been performed at the proper time and the man has forgotten to set on the clock the time for the next step, or it may be something more serious, but the thing can be checked and possible trouble avoided.

Our new face clocks were made of galvanized sheet

THE FASTLOCK

THE FASTLOCK
IS YOUR ANSWER TO PROFITABLE KNEE LENGTH PRODUCTION

The Fastlock gives triple strength and greater security. Attaches garter tops with three separate rows of stitching.

No welt is required, eliminating an extra cost.

Produces more dozens per hour, lowering costs.

Handles both plain and open elastic.

Operates at high speed and does not injure the fabric or elastic top.

Does not affect two way stretch of elastic top.

Why not let the Fastlock bring these advantages to your knee lengths? May we demonstrate the Fastlock in your plant? It will point the way to more and better knee length production.

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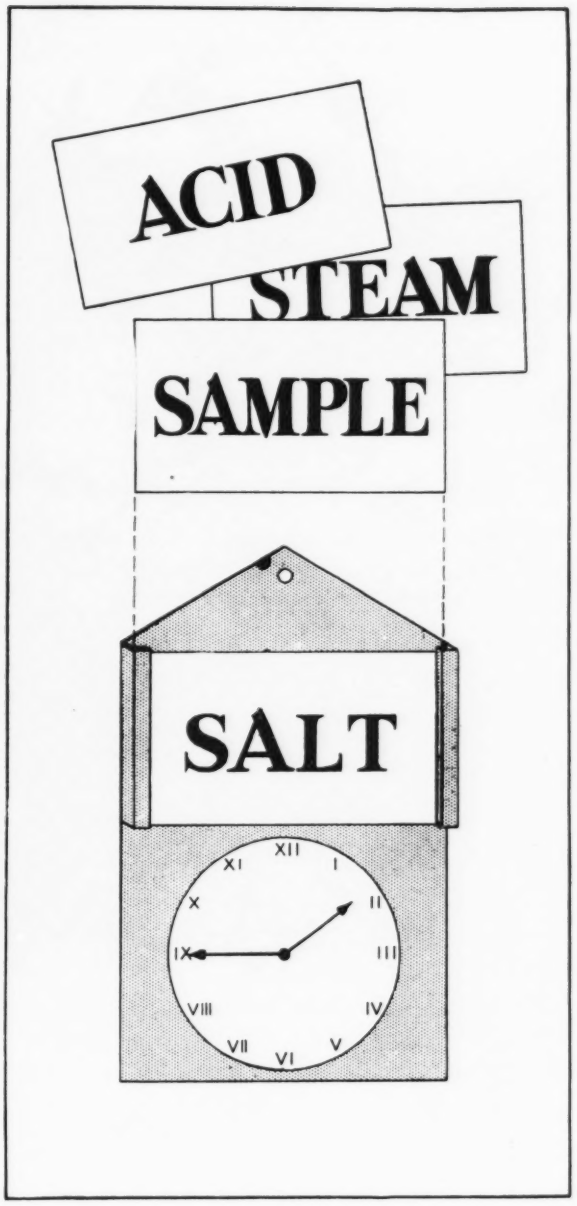


iron and painted white; the hands, circle and hours were painted black. Held in place by a bolt and thumbscrew, the hands can be moved around to any place on the clock and tightened there securely. Above the circle for the hours, a panel was made for holding the cards by folding the edges of the iron sheet to form a groove about ¼-inch wide on each side, and soldering a strip of iron at the bottom of the panel as a base. As many cards may be inserted as needed. We had two in every clock. One had "Salt" written on one side and on the other "Acid". The other card had "Steam" and "Sample" written on it. All the operator had to do when ready to leave the machine was to read the cards and expose to view what the next step was to be, then set the clock at the hour it had to be done. Very simple, but effective.

A very convenient instrument that has been used, and is probably still used in some places for measuring time, is the hourglass, or sandglass. The instrument consists of two glass bulbs placed one above the other and united by a narrow neck, through which a given quantity of sand or mercury runs from one bulb into the other. Originally devised to measure one hour, the time required for the sand or mercury to pass from the upper to the lower bulb; there are now time-measuring glasses for many needs, from measuring the time one wants his eggs boiled for breakfast to measuring the time sailors allow the logline to run. The dyer can provide an hourglass of the capacity he needs for timing his dyebath, and set it on a convenient shelf near the dyeing machine. When the sand has passed from the upper to the lower bulb, it is time to start or stop boiling, take a sample or do whatever is to be done to the batch.

Maybe some day the machine manufacturers will equip all machines with some simple device to help reduce the worries of the dyer. In the meantime, I hope this contributor will find these suggestions as useful as we did. CONTRIBUTOR NO. 6540

"Zinc Soap Spots" May be Something Else

EDITOR COTTON:

What "CONTRIBUTOR NO. 6499" believes to be zinc soap spots, on page 137, May COTTON, may not be caused by soap at all, but by the result of some finishing, de-lustering or sizing material on the hosiery that has been breaking down in the stripping bath and kept captive in the dyeing bags in the shape of numerous small pellets, which have lodged on the surface of his stockings.

These ingredients should be kept in solution when washing in the soap bath. If enough soap is used there is no reason that they should not be easily and thoroughly washed out of the goods.

We have the same trouble to overcome and it took us some time to learn the cause and to remedy the situation. The trouble started after de-lustering hosiery became the vogue, and it was aggravated by the fact that we had to increase the percentage of sizing and finishing material to better the finish on poorly knitted, flimsy hosiery.

The best way we have found to eliminate what appeared to be soap spots from stripped and re-dyed goods has been the following:

The first step is to soap the hosiery with no less than 5 per cent of good soap and 2 per cent soda ash and run the work about 30 minutes at 180 degrees F. Then rinse the soap out in warm water, about 140 degrees F., adding about a quart of ammonia water and run at least 20 minutes. Then rinse again in warm water at 120 degrees F. Then strip.

With most stripping agents no soaping is necessary. If this contributor believes the stripping chemicals should be neutralized he can do so by first rinsing and then giving the batch a bath containing 1 to 2 per cent soda ash, at about 120 degrees F. for 15 or 20 minutes. He can also reverse the process, stripping the hosiery first, and then use what has been mentioned as the first step as the concluding operation. I know of a mill doing it this way quite successfully.

This contributor can try both methods, but he will do well not to omit the ammonia in the rinse following the soap bath if he wants to eliminate his spots.

CONTRIBUTOR NO. 6539

"The sure way to miss success is to miss opportunity"

CHARLES

Successful hosiery manufacturers have long since discovered the extravagance of obsolescent machinery . . . how modern, high-production equipment materially increases the opportunity for profit. Let us show you what the new READING Full-Fashioned Knitting Machine means to you in terms of increased productive capacity and improved fabric. Facts and figures on request.

TEXTILE MACHINE WORKS • READING PA.

Loose Knitting on Outside on Leggers on Full-Fashioned

EDITOR COTTON:

The inquiry* of "CONTRIBUTOR NO. 6371" regarding loose knitting on the outside on leggers is of interest because it has brought some good discussions to light. I am constrained to disagree with the hypothesis of "CONTRIBUTOR NO. 6377", whose discussion appeared on page 99 of the August, 1935, issue, and who said the remedy for this condition is to open the regulating or slacker cam and put a thin piece of cardboard between the two outer edges where the sides meet, because the half of the cam that he would raise would affect the length of the loop for the full width of the hose. That is because this half of the cam is in operation the full run of the slurcock, and as for the narrowing operation causing less wear on the outer part of the head, we have machines that have been in operation for 18 years and no such result is yet apparent on them. If the trouble is caused by the needles being out of line, why not plier them to their proper position?

I agree with "CONTRIBUTOR NO. 6378" who said on page 99, August, 1935, issue, "If the verge plates are in good condition, the first few sinkers on either edge of the head could not be thrown farther than the remainder of the sinkers, because the verge plate and slurcock should be so closely adjusted that each sinker will be driven its full length of travel by pressure from the slurcock and not from momentum of travel." I wish to cite an experience here that I had with thread flow several years ago while operating a plant on ingrain silk hosiery. We had a set of outsize-width machines of foreign make that had been running for four years on regular width goods; during this time the sinkers and dividers and needles had been removed from that part of the sections that were not in use. We then put these machines again on outsize width and made the goods thirty needles wider on each side, filling out the heads with new sinkers, dividers and needles. On operating the first machine, we found that the fabric on the outside was much too loose. The reader will say that we should have known this would happen, but finding our mistake was not enough; we found contributing to this was the fact that the sinker slots, which had been in continuous use, were more worn than the idle ones. The new sinkers, dividers and needles gave us a larger loop and the slightly tighter sinker and divider slots gave these parts more resistance to movement.

To remedy the condition, we removed all the new sinkers and dividers, took the same number of old ones from the center of the head and staggered the new and old ones through the center of the head; we used those taken from the center on the outside where the fabric was loose. In order to be certain that the unused portions of the verge plates would not affect adjustments, we had them all removed and re-faced and set carefully to a feeler gauge. The slurcocks were removed and re-faced and squared to the slide bar and the heads re-set to the gauge. After this our trouble was only in evidence where the needles were not aligned.

Going back to discuss verge plates, it is well known to old-timers that machines that have been in operation for several years have verge plates that are pitted from the continuous hammering of the sinkers and no matter how carefully the plates may be gauged, the irregularity in the depth of the pits will still give too much play for the sinkers and it is too dangerous a procedure to set the plates without a gauge or feeler. In order to offset this difficulty, we have on hand a full set of extra verge plates and when the plates on a machine show pitted, we remove them and put on the extra set. The old set is then re-faced on a milling machine and is ready for the next machine. It is needless to expect a good fabric if the slurcocks are cut and need re-facing. If the mill is not equipped to re-face these, it is best to get new ones because the cost is so low it is not worth consideration in the face of poorly knitted fabric.

CONTRIBUTOR NO. 6530

(*) The original question prompting this discussion, appeared on page 111 of March 1935 COTTON, as follows: "One thing that has given me quite a bit of trouble in knitting full-fashioned hosiery is a looseness at the edges on either side of the fabric. This is more noticeable in the wide part of the boot or to the main narrowings. I have taken all ordinary means such as the proper gauging, etc., and, too, I might say the verge plates are in good condition, so what would you suggest I try next? I have my ideas or theories but don't know that they are right, but I will set them down here: First, when the slur-cock strikes the first few jacks, the sinkers are thrown forward farther than the remainder of the sinkers because the tension on the silk increases just a bit more away from the selvage and will hold the sinkers in check. Second, the loose course is always on the starting side and not on the finishing side. Third, by running the slur-cock forward as far as safety will permit, we can improve the fabric."

Porcelain Eyelets to Reduce Seconds

EDITOR COTTON:

For several years we had been running one type of rayon but the plant from which we purchased it closed and we had to seek another source of supply. The rayon we are now using is of the viscose process, and the pigment used in delustering it seems to be abrasive and has a wearing effect on the eyelet in the yarn changing finger. Until recently we had no experience with this type of rayon and before we knew it, our waste and seconds went higher.

When we investigated the trouble, we found that the slots in the fingers had become worn and the slightest knot would cause the rayon to break. We immediately started replacing the worn porcelain eyelet in the yarn changing fingers and when we did the trouble stopped.

These porcelains may be purchased for a small sum and the saving of one second will more than pay for them.

This type of rayon is also hard on needles and sinkers and unless plenty of good grade oil is used, the needles and sinkers are going to wear mighty fast. Of course, every mill man has his own idea of the best oil to use, but it is certainly a necessity to use enough.

I am writing this hoping that it will be the means of helping some other mill man to eliminate some of the trouble we have recently experienced.

CONTRIBUTOR NO. 6547

Another discussion of porcelain eyelets on seamless machines appeared on page 119 of the July, 1936, issue.—THE EDITOR.

A New High Standard of Performance Value in Needles!

The Royersford Organization is now concentrating all the facilities of its needle department on one product—the new Royersford Standard Hand-Straightened Needles. Because the hand-straightening operations are now "standard" and not "special" jobs, we are able to give you complete finishing in the new Royersford Standard Hand-Straightened Needles at the lowest price you ever paid for anything approaching this high standard of performance. Write us for samples.

The prescription for better knitting

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PA. : : SOUTHERN OFFICE: Provident Bldg., Chattanooga, Tenn. : : Spring-Beard Needles, Narrowing Points, Picot Points Lace Points, Welt Hooks, Transfer Points, Stand Points, Bent Points, Dull Points : : Sinkers, Dividers, Jacks, K.O. Bits : : Thread Holders, Carrier Tubes, Welt Bar Hooks, and Eyelets, Strap Cleats, Plate Hooks, Footer Hooks, Strap Hooks: : R. F. Clamps and Straps, Legger Straps, Tension Wires, Snapper Springs, Mend Hooks—for all machines : : *For Glove and Underwear Industries*—Milanese, Tompkins and Tricot Needles, Milanese and Tompkins Guides, Tram Travelers : : Special orders for machine parts or appliances of any type. Development work confidential.

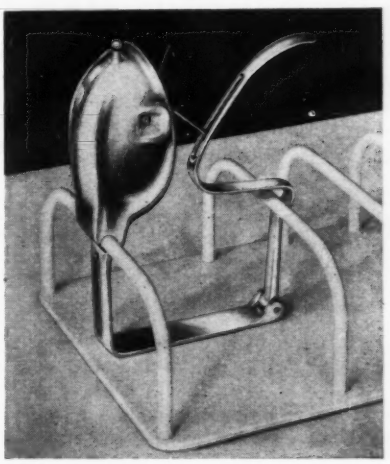
ROYERSFORD NEEDLES

The "Reading" Expanding Examining Forms for Modernized Examination of Full-Fashioned Hosiery

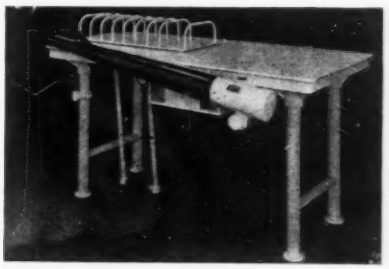
Textile Machine Works, Reading, Pa., after more than 15 years of manufacturing inspecting and examining equipment for full-fashioned hosiery mills, have developed the "Reading" expanding examining form, particularly designed to meet the strenuous requirements of rigid hosiery examination, a problem intensified by the trend toward fine-gauge, high-speed knitting machines. This form, together with auxiliary equipment in the form of an all-steel table, a dividing rack and automatic stocking counter, is designed as a complete examining service.

An installation in a large full-fashioned mill

The form is constructed of laminated "Bakelite", with a smooth, permanent black surface. It provides a check on all manufacturing processes and materials used with special attention given to: (1) Looping at heel and toe; (2) careful check of entire heel construction, with particular reference to matching heel reinforcement and gusset narrowings; (3) straightness of seam; (4) correct alignment of converging wale lines to fashion marks; (5) uniformity of loop-formation; (6) sleaziness; (7) horizontal rings caused by variation in silk; and (8) menders at any point in the fabric, especially at the fashion marks. The importance of locating any one or all of these defects before the stocking is finally finished cannot be overlooked.



The automatic stocking counter



The expanding form unit

The new "Reading" form when expanded follows the natural shape of the stocking in proportion from toe to welt, stretching the fabric across its width and distinctly showing the loop-formation without distortion, it is explained. Further, the form is supplied with a heel-expander that may be adjusted to allow heel expansion in proportion to the leg expansion. The unexpanded shape of the form is tapered in size to fill out the full leg portion, or boot, of the stocking so that major defects are visible even before the form is expanded. The smooth, permanent black, Bakelite surface over which the stocking is drawn for examination eliminates any possibility of making "pullers"; and the form retains its glossy black surface regardless of wear.

Flexibility is one of the features of the form. It is designed to provide examination of the stocking on either the reverse or right side of the fabric as desired; and can be adapted to any style and size of full-fashioned hosiery. The necessary adjustments for any pre-determined amount of leg and foot stretch and for foot sizes may be readily made.

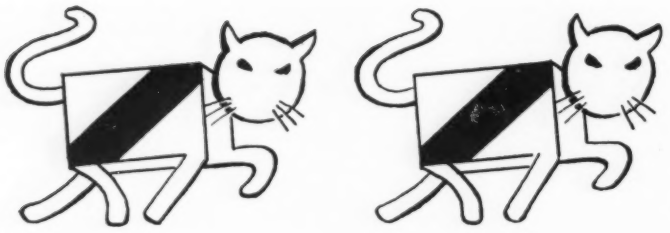
The fact that stockings may be automatically turned on the form—permitting inspection on the right side—and drawn over the form full length in one operation, eliminates the separate turning process necessary when stockings are examined on the wrong side. Since the stockings come from the seamer wrong side out, it is customary, when using this form, to take advantage of the turning feature and examine the stocking on the right side. When this feature is used, the stocking is first put through the slot at the nose of the form (welt first) and brought up from the bottom, the welt opened and the stocking drawn over the form in the reverse direction, thus placing the stocking on the form with the right side out. With the stocking on the form in this manner, it is practicable to examine the looping-seaming, and narrowings thoroughly.

After the stocking has been pulled completely on the form, the operator moves the foot treadle back, expanding the form, and at the same time guiding the heel-piece into the heel pocket of the stocking. By holding the form in the extended position and rotating it, close examination is made for defects of the various items listed above. When the stocking has been examined fully, the foot pressure is released, thus causing the form to close and allowing the stocking to be removed merely by sliding it off the smooth surface of the form.

The "Reading" form is available in a foot-power-operated type and in a type operated by compressed air. The foot-operated machines are easily operated and are mechanically adjusted for proper expansion. Air-operated machines are provided with both mechanical adjustment and air pressure regulating valves guaranteeing the same pre-determined limit of stretch for every stocking examined. The foot-operated forms may be converted to air-operated machines by adding a specially constructed air cylinder.

It is explained that thorough inspection depends upon good eye-sight and a high degree of mental and physical co-ordination. The "Reading" unit, it is pointed out, provides desired co-ordination because of a minimum of lost motion and the permanent black color of the form, used to eliminate eye-strain. An average production is from 8 to 10 dozen pairs per hour.

Auxiliary equipment designed to increase the efficiency of operation of the expanding examining form is the dividing rack and the automatic stocking counter. The dividing rack provides a method of keeping the different types of defective stockings separated; and the automatic stocking counter counts the stockings as they are simply thrown over its index wheel, the weight of the stocking being sufficient to register the count.



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THE KNIT GOODS MARKETS . .

Higher Commodity Prices and Good Retail Demand Stimulate Demand for All Types of Knit Goods—Prices Advancing

Philadelphia, November 16, 1936.

BUYING of all varieties of knit goods has been heavy and manufacturers are well fixed with orders through the balance of this year into the early part of 1937. Buyers are placing orders in larger volume than usual because they believe that higher prices of cotton, wool and silk in themselves will force new increases and in addition to this there is a general policy apparent in the industry to grant wage increases to employees, which will, of course, be translated eventually into higher prices for these goods. In addition to this, beginning in January, manufacturers will be confronted with higher costs in other directions, for example, payments under the Social Security legislation will begin then. All this has brought about a bullish sentiment in the market and there is an inclination among wholesale buyers to place order for the next season earlier than usual. For example, the advance selling of underwear for next spring is already completed to a great extent and now there are reports of large buyers showing interest in what mills intend to do in outerwear numbers for the fall season of 1937.

Volume Larger, Prices Stronger

Volume of sales in the primary hosiery market is the largest that has been seen for the last five years. Most mills have excellent orders on their books, which will keep them busy during the next couple of months at least. Business to date has been sound and healthy and there has been little speculative buying. But in the face of this generally satisfactory order situation, there is a general complaint from manufacturers about current prices and in fact, against the reports of isolated price shading in some sections of the business at a time when demand is so active. There are no indications as yet of an early seasonal slackening of activity among full-fashioned hosiery plants, and prices are firm on practically all constructions. It is difficult for buyers to uncover low-end goods at cheap prices and deliveries are a problem in a great many cases.

A price of $5.50 is current for a good quality unbranded 4-thread, 42-gauge ringless merchandise despite the fact that branded numbers of this construction are quoted at from approximately the same price to 25-35 cents higher. Buyers who obtained low-end 4-thread, 42-gauge at $4.75 in the late spring are now willing to pay $5.25 for new commitments, this being a fair measurement of the sharp improvement which has taken place on low-end merchandise. With the speculative buying of full-fashioned goods, which occurred at this time last year, largely absent at present, manufacturers are expecting a more even market this year with production spread out more evenly over November and December and therefore less prospect of a sharp drop in January. At the moment many in the market are hopeful that the usual January depression in prices will be absent in 1937 if manufacturers continue to hold production in line with market requirements.

Desirable constructions and patterns in half-hose are strongly sold ahead, a fair-to-good reception having already been accorded new lines for spring by the wholesale trade. Duplicate orders on seven-eighths lengths and boys' golf hose are very satisfactory and the five-eighths business is still good with many producers. Volume is excellent on women's seamless lines with the expansion in volume on silk goods, which has been noted all this year, continuing to be felt.

In the full-fashioned end of the market there are no signs as yet of a let-up in demand, which many expected would begin to show itself about this time, the market for unbranded full-fashioned hosiery continuing strong and active. It is difficult to find a mill of any consequence which can take on additional business for delivery before the latter part of December. A number of the better known large producers have been unwilling to sell themselves up very extensively for January and February delivery orders.

Notwithstanding this, a fair amount of business in ladies' full-fashioned has been placed for delivery during the first two months of next year. More of this type business could be booked at this time if the mills were willing to accept it. In fact, several mills within the last few days have withdrawn their lines for sale for the time being. Business for next year delivery, which has already been booked, came largely from several of the large chain buyers, although some of the larger wholesalers are also interested in covering for delivery after the first of the year. Among the orders booked this week was one for over 30,000 dozens and several others running into 1,000-dozen lots were known to have been placed. Where mills take orders of this type, they are then slow about committing themselves for further quantities.

Higher Prices Anticipated

The raw silk situation first of all is behind the caution of the full-fashioned manufacturers in selling up too much of their future production. The recent advance in silk has been considered significant by these users and they now talk of still higher prices in the future. In addition to the advance in raw silk, manufacturers are also considering other factors of the immediate future that mean higher cost in production. First of all are the taxes connected with the Social Security Act, effective January 1. The hint of shorter working hours in the near future is also not being overlooked by hosiery manufacturers as well as those in other knitting lines. Business already booked for after the first-of-the-year delivery has been taken at prices about on a level with those recently ruling with the mills concerned. Several advances of 10, 15 and even 25 cents a dozen are reported being made recently by some manufacturers.

Fair buying of new lines of fancy half-hose for spring by the retail trade has been reported. Relatively little interest has been displayed in these lines to date by chain store outlets but a pick-up in volume from this end is expected within the next two weeks. It is generally felt that half-hose slacks, by which is meant short socks with various types of elastic tops, will take a larger portion of the total half-hose business next spring than at any season since their vogue as a volume article started a few years ago. Some in the market believe that the variety of merchandise which may be generally classed as slacks will account for 50 per cent or more of the total half-hose business for next spring. Several types of the new garter-attached full-length socks have been given a favorable reception by consumers. Department stores and specialty shops continue to promote these new items which the market regards as an interesting development in the trend toward self-supporting socks. In the women's seamless field, most mills continue well engaged on orders but critical of what they term the total absence of profits in present market levels.

Anklet Business Increasing

One mill has advanced its quotations on women's rayon and mercerized goods approximately 5 to 10 cents but the movement toward higher prices has not become general as yet. Sellers say many buyers are misjudging the rayon yarn situation. Numerous requests have been received on both half-hose and women's seamless for price reductions as a result of the recent cut on some deniers of acetate yarn. Sellers point out 150-denier acetate, which is the denier generally used in hosiery, is unchanged in price and that large producers of viscose type yarn give every indication of continuing present list prices unchanged for January delivery, with the 5 per cent discount now in effect removed. This really amounts to a 5 per cent advance in rayon yarn prices for that delivery.

The number of selling offices which have completed their sales of anklets

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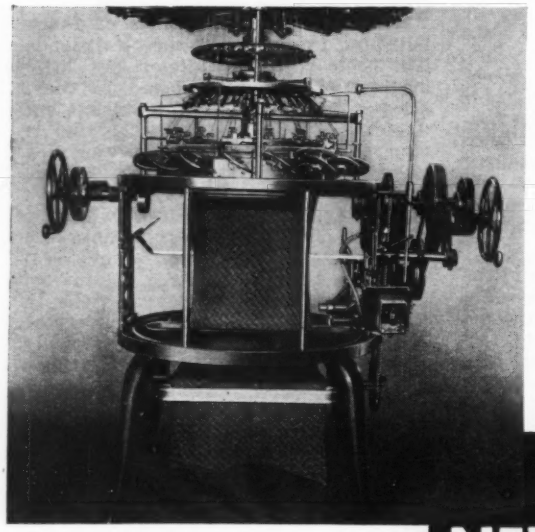

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for spring grows larger each week. Mill representatives say quite a few jobbers who delayed making commitments on anklets because of lack of faith in reports of heavy early buying will now experience unavoidable and possibly serious delays in deliveries on these lines for next spring. Many manufacturers of children's anklets are practically sold up for that season. As an indication of the status of this section of the market, one jobber who refused to operate early, despite the pleading of the mill agent involved, recently sent in an order marked for December delivery. When informed that these goods could not be delivered at that time, the jobber changed his tactics and began to place his spring orders so that he would be free of such delivery worries next season.

Hosiery manufacturers making men's fancies for the spring season are also finding that business is coming in freely from many wholesalers. Salesmen who have been out have found the trade willing to buy at this time and the volume already booked is large. The chains and mail order houses have been operating in these lines for some time. They have also been placing orders in men's anklets or slacks more heavily than ever before and sections of the country which last season refused to accept this new type merchandise are now buying heavily. While some sections, notably the Middle West, took to this new type hosiery from the beginning, other sections, such as the East and New England, were slow to fall in line, but now the outlook is that the next season will see most parts of the country using large quantities of anklets with New England perhaps still holding back.

"Slacks" Business Is Good

Manufacturers of machinery have been bringing out new attachments for making the rubber tops of this type hosiery which are looked upon as more satisfactory from a knitter's standpoint than anything produced so far. Such developments as this will tend to increase the production of these anklets. Although there are some skeptics on knee-length hose for women who refuse to believe that this type stocking has become a permanent staple, there is a rush to place orders in knee-lengths for spring.

Many new numbers are being shown and practically all full-fashioned mills will include them in their spring lines in a more comprehensive fashion than ever before. In the seamless field it is already apparent that the competition for knee-length business for spring will be very keen because new numbers are appearing on the market almost daily. The heavy volume on seamless knee-lengths has been done so far this season on silk merchandise but it is expected that sales of seamless rayons will expand during the coming weeks. Competition has already driven down prices on some seamless silks to levels which manufacturers declare show no profit.

A new development in the knee-length vogue has been the offering of combed numbers as well as mercerized, which are both being offered for spring with the former price to retail at 15 cents and the latter to go over the counter at approximately 19 cents a pair. In this connection, advances announced in mercerized yarns were of importance to hosiery manufacturers of this type as well as those making men's half-hose and children's numbers. In fact, some lines of men's half-hose were withdrawn early this month when the advance in mercerized yarn took place but these were largely hose in the lower price ranges where quotations had already been very close. It was estimated that the rise on numbers of the cheaper range, such as goods heretofore selling at $1.20 a dozen, might be 5 to 10 cents a dozen. While advances were forced by the rise in yarns, mills and selling agents said they were meeting with the usual amount of resistance by buyers, who said that the difficulty was that even 5 or 10 cents a dozen increases would mean that lines would be taken out of old resale price ranges, to which all parts of the trade have been accustomed, but manufacturers emphasized that they could no longer afford to go on selling at low prices with costs increased by these yarn changes.

Higher Material Costs Will Increase Prices

PHILADELPHIA—Following the national election, excited trading in textiles developed. Sales of cotton yarns, for example, broke records of 15 years' duration with cotton yarn commission sellers here and reports along the same lines were made by producers of silk, worsted and rayon yarns. This primary market action only confirmed what was also happening in manufactured garments—buyers were fearful of still higher yarn and goods prices and for this reason were buying further ahead than for many years. Manufacturers consulted said the movement was based on a fear that commodity and manufacturing costs in the United States were going to advance much further. For example, many pointed to the social legislation that is yet to come according to present indications. "This is going to raise the cost of manufacturing for us all," said one large knitter. "We want to protect ourselves against it as far as possible and this is what has happened all along the line."

Full-fashioned hosiery plants in Pennsylvania are generally operating at 100 per cent rates and manufacturers in many cases report they are unable to keep up with their deliveries. Stocks held by these mills are small and several report that their holdings have been practically cleaned out. The secretary of a large full-fashioned group in this section said that a survey made early this month indicated that most of the mills were sold up for the next two months at least but this survey also indicated that manufacturers were complaining of the insufficient profit on the business, particularly in view of the persistent advance in raw silk. Most of these manufacturers have been buying their raw material from hand-to-mouth during recent weeks, but now a more liberal buying policy is apparent among them. Many are now covering their present goods orders and indications are a more liberal buying policy by the full-fashioned trade will develop shortly because there is a feeling that the raw silk advance which has amounted to about 25 cents during the last month, is going to carry on further and manufacturers want to protect themselves against this contingency.

The status of hosiery imports from Japan is undergoing a change. The August totals on all types of hosiery were down considerably from the month of July with the drop in imports from Japan, the largest source, being the deciding factor. In other words, imports from that country for consumption were approximately 150,000 dozen pairs in August as compared with 230,000 dozen for July. The logical explanation of the new situation is that importers of Japanese hosiery since the filing of the manufacturers' brief with the Tariff Commission for greater protection of domestic manufacturers have begun to curtail their buying operations. They naturally fear that they might be caught with large quantities of merchandise on the way to this country in the event the Tariff Commission does recommend a drastic change in the present duties. At the same time, while imports of new merchandise are declining, withdrawals from warehouses of previously entered merchandise are increasing to take care of established trade in our markets.

It is understood that the commission's preliminary investigation on this matter has been very thorough and that as a result, its official investigation may not be as extended as is often the case in such applications. The official order of the Tariff Commission directs that an investigation of the differences in cost of production of "hose and half-hose, seamless or mock seam, finished or unfinished wholly or in chief value of cotton, made wholly or in part on knitting machines being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of competing foreign countries."

Careful Operations Urged

In view of the capacity operations of the hosiery industry at present and the fact that long idle machinery has been brought into action, the National Association of Hosiery Manufacturers has pointed out that its members would do well to consider the early need of curtailing for the normally slow months of January and February. It also declared that a large number of new mills have been started up this year which would add to over-production if not curbed in time. The association pointed out that manufacturers which have the best records for successful operation are those which budget their production and generally do not run their plants full time during January and February unless on profitable business and it stated these plants do not accept orders at unprofitable prices which are fre-

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quently offered by buyers during these two off-season months.

The danger of unwise production is likely to be greater next January and February than it has been heretofore due to the increased volume of production which has come into effect during the last year. In spite of the fact that the industry suffers primarily from over-capacity, the National Association reports that a surprisingly large number of new mills have been started during the year, partly using new equipment and partly old equipment, which had been out of use and which now comes back to activity. In commenting on this, several manufacturers here said that while they felt some decline in their machine operations would be in order during the off-months, they asserted that business according to present indications would be considerably higher than that normally booked during the first two months of any year.

These statements are confirmed by reports covering the industry this year. August shipments of all types of hosiery increased more than 15 per cent in comparison with the same month of 1935 and for the first eight months of the year, the gain in hosiery shipments as compared with the same period last year was a little over 10 per cent. These increases compare favorably with the gains reported this year in dollar volume of sales by retail stores. October and November of last year were exceptionally active for women's full-fashioned hosiery because of the sharp advance in raw silk during the late summer and early fall. It is considered unlikely that mill shipments during the same months of 1936 will equal those of a year ago but with a gain of 4.3 per cent in full-fashioned shipments during the first eight months of this year, the yearly total is certain to be respectable.

Shipments of men's half-hose, excluding wool for the first eight months of this year were almost 8 per cent ahead of 1935's similar period, the largest gain being reported by cotton half hose. The expanding market for women's knee-length hose is indicated by the substantial increase in shipment in round numbers from 118,000 dozens in August, 1935, to 212,000 dozens last August. All types of children's hosiery showed gains over 1935 with those registered by five-eighths and seven-eighths goods being extraordinary. Anklet shipments for the first eight months of this year were up over 17 per cent. The largest gain in shipments for the first eight months of this year of any division of the hosiery industry was made by misses' and infants' ribbed goods, which jumped 28.6 per cent. The increase in August shipments in this branch of the business was nearly 53 per cent. Close to 19 per cent more women's seamless hosiery was shipped during the first eight months of 1936 than during the same period last year.

The Berkshire Situation

PHILADELPHIA—The most important labor disturbance in the hosiery industry at present is at the largest full-fashioned plant in the world, the Berkshire Knitting Mills of Reading, Pa., which is being picketed by members of the American Federation of Hosiery Workers, who assert among other things that the large mill is not living up to the general wage and hour standards of the rest of the industry. In this connection, the announcement made recently by Hugo Hemmerich, general manager of the Berkshire, that 100 machines were being knocked down for removal from Reading to some other section, has caused considerable comment in the trade. Many believe that these machines are going to be set up at undisclosed locations in the South but on this Mr. Hemmerich would make no comment. However, there is evidence that several other important full-fashioned hosiery manufacturers in this section have decided on a removal of their equipment to the South. Some of these, it is understood, have decided to operate a number of smaller units in the South but not located in the same city or town. Whether this policy will be adopted by the Berkshire is not known at the present time. In commenting on the union's action, Mr. Hemmerich said "We are forced to accept the offer of communities in other States where our business can be conducted under peaceful conditions."

Active Demand for Underwear with Scarcity for Nearby Shipments—Interest in Fall Lines Expanding with the Price Trend Upward

With underwear mills already in receipt of an exceptionally large volume of business for next spring, these manufacturers have now begun to advance prices moderately for further business for that season. This is in line with expectations as these mills started with low prices when the spring lines were opened. One of the largest mills making knitted underwear has announced new prices for further spring business amounting to 2½ to 12½ cents a dozen above old figures, the increases varying, of course, with the different price ranges. The substantial activity in spring merchandise has developed pressure on underwear manufacturers to make prices as far ahead as the fall season of 1937. Buyers for several of the large chains, which are always among the early operators every year, are especially eager to get manufacturers' ideas on prices for the fall of next year. The natural conclusion is that buyers in this way hope to get better prices at this time than they would later on. If they can get some mills to name prices for that season at about the present level for large selling numbers, such as men's cotton ribbed underwear, buyers would operate freely. Manufacturers in the face of this demand feel that they should not accept business so far ahead at prices no better than those prevailing now.

The industry is convinced that higher costs are inevitable, not only from legislation going into effect with the first of the year, but also from further laws such as those on hours and wages still to come. If there is not an actual revival of the NRA next year, it is taken for granted that something with much of the same effect can be expected. There is also the natural expectation that wages will have to be adjusted upwards in line with the move in other industries.

The New York wholesale trade has now started to buy underwear for the spring season. They have been the last to operate on these lines as most of the retailers in other parts of the country have already placed their initial orders. With a start now made it is expected that the large volume of business that always comes from New York wholesalers will place manufacturers in an excellent position and at an earlier date than in any recent year. It has been noted that the initial buying of wholesalers for spring has been on a larger scale than usual, which may mean that the re-orders that season will not start so early or be so heavy as this year. Manufacturers, however, feel that their productive capacity will be taxed to meet the demands.

The fact that some mills are so solidly sold up for spring and with cotton yarns staging additional advances, several mills have withdrawn spring lines from sale for the time being while others are making price changes, particularly those making men's goods. In view of the fact that buyers have had a good opportunity during recent weeks to cover for next spring at the low opening prices, the advances which are now being made are not proving unwelcome to the wholesalers. Several say the effect of a rise in manufacturers' prices will make the best sort of a selling argument when they offer these lines to their retail customers for the next season.

Talk of the fall season of 1937 has developed in the underwear market. It comes from inquiries of several buyers for chains, who are customarily among the early operators in any season. Manufacturers and selling agents are putting off such inquiries as much as possible and the general market sentiment is that prices for next fall will have to show an increase over those this season so that it is a problem of determining what the advance will have to be that makes manufacturers slow to quote for the fall season. The price level on men's 12-pound cotton ribbed union suits is now well established at $6.00 for the standard numbers. At this level, these suits are within 12½ cents of the first figure set by mills when the season opened as being the right price if any profit were to be shown. It will be recalled that before the season's selling had been long under way the price dropped to $5.87½ and later settled at $5.62½, a figure at which most of the early buying was done.

The few mills making men's and boys' fleeces are receiving a better demand this year than for a long time. This class of underwear in both union suits and shorts and drawers is likewise reported as being among the

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scarce numbers at present. Much of this machinery has been turned over to outerwear numbers such as sweat shirts and fleeced coats. There is a scarcity in men's staple 10 per cent wool union suits in selling markets which is only the beginning of a similar situation in all kinds of heavy goods in the opinion of conservative selling agents.

The weather this season in many localities has not been particularly favorable for heavy underwear but cooler weather during the last week has been welcomed by wholesalers and retailers, who reported an immediate improvement in demand from consumers. Buyers were calling for quick shipment of heavy underwear on order and also offering new business for mills in a position to make reasonable deliveries. Men's and boys' cotton numbers were, as usual, the ones buyers were most interested in. A continuation of this weather will cause a quick change in the situation and many wholesalers say will undoubtedly disclose shortages in men's and boys' heavy underwear. Women's and children's numbers likewise receive benefit of the increased interest on the part of retailers following this spell of more seasonable weather.

Shipments of knitted underwear in the cotton and wool group passed the 2,000,000 dozen market for August, according to a report of the Department of Commerce, which was a gain of 200,000 dozen over the same month a year ago.

Outerwear mills are getting out new samples for the coming spring season. The new samples indicate that in men's goods fancy effects will continue, styles being along the same lines as those selling this fall. Manufacturers are busy at present on their winter lines and most reports are that while buying was late in developing, they will squeeze a respectable season in. They expect to swing over from heavy goods into the spring merchandise without any between-season lull. Most wholesalers of outerwear have found that they under-estimated the business to be done in addition to buying late and a considerable volume of business has been lost because mills have not been able to make deliveries wanted. This makes it probable that buyers will profit by their experience this season and operate earlier for next fall. Outerwear mills selling the wholesale trade are gradually getting lines complete for the spring season of next year. In men's coats, many of them are showing plaids, stripes and block patterns for the front of the coat, with plain knitting for the back. Novelty finishes, as to pleats and half belts, are again prominent. Both full zipper and button-fronts are shown and wool mixtures on the soft brushed order are used. Cheaper coats start at $11.75 per dozen for the button-front and $13.50 for the zipper front.

New Full-Fashioned Labor Contracts Local

PHILADELPHIA—Of importance to the full-fashioned hosiery industry was the announcement made by the American Federation of Hosiery Workers that a new policy in respect to labor agreements with closed shop manufacturers has been adopted. Instead of a national contract with members of the Full-Fashioned Hosiery Manufacturers of America, Inc., district, local and individual agreements will be the new policy of the union. During the last six years the union has signed a national contract with this manufacturers' group, regulating wages and working conditions in these plants which represent an important section of the industry. This year the manufacturers presented a demand for minor downward revisions in the wage scale which were not accepted by the union. A national ballot of the membership of the union by a close vote even refused to arbitrate the questions at issue so that the only alternative left was to arrive at individual agreements with the various manufacturers. What effect this will have on wages generally paid in the industry is not known but the closed shop manufacturers have announced that they plan to make no change in the status quo at this time.

New Method of Producing Synthetic Fiber in Cotton, Wool and Mohair Sizes

PHILADELPHIA—The development of a new method of producing synthetic fiber in cotton, wool and mohair sizes under the cuprammonium system by means of a new machine, where as high as 20,000 filaments have been spun at one and the same time has been announced. The following discussion appeared in a recent issue of the New York *Journal of Commerce:*

Henry C. Forrest, president of Forrest, Inc., Gloucester, N. J., the inventor of the new machine, said the patent claims were granted by the Patent Office at Washington covering the machine and its process.

Low Cost Per Pound

In explaining the machine, Mr. Forrest said it is unique in its condensed economical operation with a very low cost per pound of production, having a large per day production with only nominal labor charges.

Mr. Forrest stated that during the development of the machine over the last two years trial test lots of the product were submitted to cotton spinners and weavers, worsted spinners and plush weavers with excellent results obtained in the finished yarns and goods produced.

A test lot worked into knitted cloth from the yarn was said to be outstanding in its appearance, handle and wearing qualities. By the use of cotton sized staple in the cotton spinning section of the industry, a number of processes in such spinning are completely eliminated, according to Mr. Forrest, who said also many of the remaining processes are much simplified with no waste whatever being produced by the use of this staple. "One hundred pounds of the filament will produce in the final operations 100 pounds of uniform yarn," he asserted.

He called attention to another feature, the uniformity, that all staples are of the same length by this method and that no short stock exists to cause the usual thick and thin spots in the yarn which occur in the usual cotton spinnings.

Mr. Forrest was originally identified in the mercerizing industry in 1895 with his father, who was president of the Pennypack Yarn Finishing Co., Holmesburg, Pa., which plant was one of the first mercerizing units to be established in the United States. Later he formed the cotton yarn firm of Forrest Bros., Philadelphia, and in 1920 the mercerizing plant at Gloucester, N. J., was completed.

Studies Cuprammonium

For the last few years Mr. Forrest has been closely associated with and has made a study of the cuprammonium rayon industry and its methods. It was during this period that he began to believe that synthetic staples were about to come into the textile industry to a greater extent than most realized. He felt that the coming of synthetic staples into such prominence would greatly improve the appearance of all types of fabrics and at the same time allow for greater profits for manufacture of them.

During the last year the growth of the use of synthetic fibers in the textile industry has been of outstanding proportions, he emphasized, increasing beyond all predictions. Mr. Forrest says the expansion in it already seen is only the beginning, adding that several other countries have shown what may be expected along these lines.

Mr. Forrest said the limited number in the industry that have seen the machine and its product have displayed intense interest in it. Plans are being considered with the view of completing in the near future a first producing unit with a daily capacity up to 10,000 pounds, in all sizes for both cotton and worsted spinning systems.

He said the type of fiber produced "is of a most superior quality and strength, being of the cuprammonium type and process and similar to the best yarns of this process produced in this country and in Germany." At present there is one machine unit in operation at the Forrest, Inc., plant, producing its full capacity which is being taken by spinners.

Hosiery Shipments Continue to Gain

Statistics prepared by the National Association of Hosiery Manufacturers, and released to hosiery manufacturers in the association's *Statistical Bulletin*, show that the seasonal expansion in hosiery shipments which began in August continued during September. Shipments of all types during September, 1936, amounted to 960,874 dozen pairs, or 8.6 per cent over shipments for the preceding month of August and a gain of 1,300,369 dozen pairs, or 12.0 per cent over shipments in September, 1935. Shipments of ribbed goods and cotton bundle goods in September, 1936, receded from the relatively high levels established in August of this year, and there were moderate seasonal declines in shipments of children's goods and anklets. Except for cotton bundle goods and woolen goods, however, shipments in September this year exceeded shipments in September last year in each major branch of the industry.

For the period January through September, 1936, shipments of all types of hosiery amounted to 88,565,436 dozen pairs, or 10.4 per cent more than shipments during the same months last year. Each of the major branches of the industry showed a greater volume of shipments for the first three quarters of this year than for the first three quarters of 1935, with the single exception of woolen goods, where shipments are particularly subject to weather conditions. Shipments in the women's full-fashioned branch of the industry for the first 9 months of 1936 were 5.8 per cent more than for the same period a year previous, and shipments in all seamless branches ran 12.4 per cent ahead of last year.

REVIEW OF THE YARN MARKETS

Record-Breaking Volume in Cotton and Rayon Yarns with Widespread Improvement in Silk and Worsted Counts

Philadelphia, November 16, 1936

THE PAST four weeks have been the most active the various yarn markets have experienced this year and in the case of cotton the most active for many years. Rayon poundage has continued large although prices are 5 per cent higher in view of the discontinuance of the 5 per cent discount at the end of this year. At the same time silk and worsted, previous laggards, have joined the procession and now it is more of a sellers' market in these. Previously it was a sellers' market in cotton and rayon yarns. Prices of all types are higher than a month back with the trend still upward.

Cotton Yarns

The boom in cotton sales yarns over the last month has not been equalled for 15 years, according to veteran sellers in this market who say manufacturers are buying further ahead and spinners have more poundage on their books at this time than they have had for this length of time. In fact buying has been so heavy that at the middle of the present month some spinners withdrew their quotations until they could total their orders and find out just where they stood.

Although buying has been general and further ahead by all trades, with manufacturers fearing additional advances in the near future but it has been especially noticeable in two-ply carded weaving. These yarns are used in many cases for housefurnishing articles such as draperies and carpets, and such lines have been selling very rapidly in retail outlets. Demand for carded weaving has been heavier than seen for many years and at the same time buying further ahead has been noted.

Knitters have been covering well into next year and poundage has been large enough to place spinners in a sold up condition for this year at least and some beyond. An unusual feature of the market has been that weavers of various type fabrics have been buying yarns up until next June, which is much farther ahead than such manufacturers have been buying for many years. Knitting yarn spinners are selling even farther ahead but this is not so unusual with them as it is with the weaving section of the market. One of the largest combed spinning groups in the country has enough business on its books to keep its 20 odd mills fully engaged for the next five months and it has been obliged to refuse business on both single and ply yarns for delivery during the remaining weeks of this year.

Although raw cotton is quoted at lower figures on the futures market than a month ago, all types of yarns are quoted at higher prices and this is explained by the heavy demand which is giving spinners a much needed opportunity to place yarn quotations on a more profitable basis than for many years past. At the same time spinners report that as the futures market eased off, the basis in the south for the various spinning staples has widened so that actual spot cotton in the south is really costing spinners more than a month ago. Carded yarns have been advanced from ½ to 1½ cents.

In the combed section advances of ½ to 2 cents a pound have been made during the month with spinners stressing the high prices that they are now compelled to pay for the longer staples of cotton. This situation has been reflected in the price of mercerized yarns, which processors have raised from 1 to 2 cents, bringing 60s two-ply ungassed being quoted at 69 cents compared with 68 cents a month ago. With additional advances being made in combed qualities, the trade believes that further increases in the price of such yarns will be made in the near future. Large sales of mercerized yarn have been made for delivery during the first half of 1937, most of which was placed before this advance in prices occurred so that hosiery manufacturers are fairly well protected during the next six months against further advances in this yarn.

Worsted Yarns

A violent upturn in raw wool and tops during recent weeks has forced substantial advances in worsted yarn prices and at the same time has developed the biggest buying movement in these yarns of the present year. Buying has been heavy during the month and most spinners now have enough business on their books to run them for about three months ahead, which is as far ahead as they feel they should commit themselves in view of the excitement now prevailing in the raw market. Many manufacturers delayed placing business earlier this fall, feeling that there was a good chance of buying at lower prices and they have been caught short so that a larger amount of business than would have otherwise developed has been booked by spinners in the last few weeks.

Prices of these yarns have been advanced 5 to 10 cents this month and spinners assert that further advances in the wool and top markets this week will make additional advances imperative. These yarns had been selling on a cost basis so far as spinners are concerned so that they are making a concerted effort to place quotations back on a profitable basis, which they are now able to do because of the large demand from all trades. In fact, there is a general complaint in the spinning trade that the bulk of the business now on their books was taken at the lower prices and that two large a poundage was sold at such figures, indicating that relatively few spinners are now in position to sell large amounts at the higher and more profitable prices now prevailing.

Rayon Yarns

Although normally a decline in demand and shipments of rayon yarns takes place at the year-end, there is evidence that this will not be witnessed this year. Producers of yarns have opened their books for the acceptance of January shipment orders and most of them report that within a few days of the opening they were successful in selling that month's production, which indicates that the yarn consuming trades expect no between-season decline in volume of importance but rather that their present activity will continue. The fact that yarn orders for January delivery show no decline compared with recent months was significant in view of the discontinuance of the 5 per cent discount by producers on all yarns shipped until December 31, 1936. This really meant that all January delivery orders which have been taken this month were at prices 5 per cent higher than manufacturers have been paying this year.

Demand for these yarns has been so heavy that producers have not been able to build up their yarn inventories which were previously at record lows. In fact, most say that their stocks now are smaller than they have ever been in their history. The industry believes that this situation is not apt to change in the near future and while some steps are being taken to increase productive facilities, not much help from this end can be expected during the early part of 1937. During the last couple of years it has been evident that demand for rayon yarn was about equal to the productive capacity of the industry and with buying on a much heavier scale than usually seen at the end of the year, evidence points to this tight position being emphasized further rather than corrected.

Silk

Silk has been advancing steadily during the last month and especially during the last two weeks with many in the trade feeling that the upturn has not yet run its course. Raw silk is now quoted about 25 cents a pound higher than a month ago, which is an upturn of enough importance to bring about changes in the price levels of hosiery and other articles made from this type yarn. Most believe that the advance this year is based on a much sounder foundation than that which occurred last year but which was later lost. Hosiery manufacturers have been buying more heavily than at any recent month but most of them have been confining their purchases to actual goods orders on their books.

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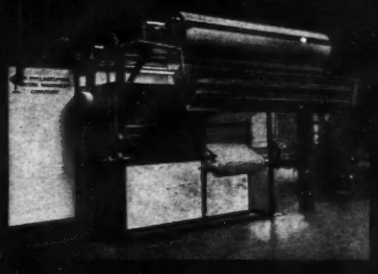

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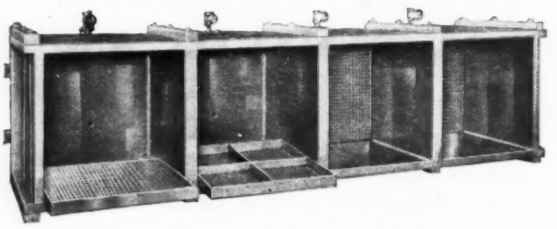

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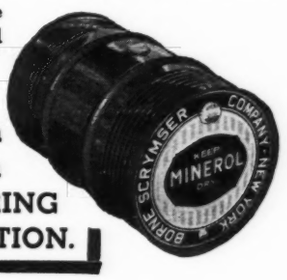

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Why use old worn out cloth covered wood Rolls, when the Lucas Scavenger Roll is available? The truest, longest life and most satisfactory Roll on the market to-day. Leading mills are using them exclusively. Samples in your size for the asking.

THE L. M. HARTSON COMPANY

Established 1866

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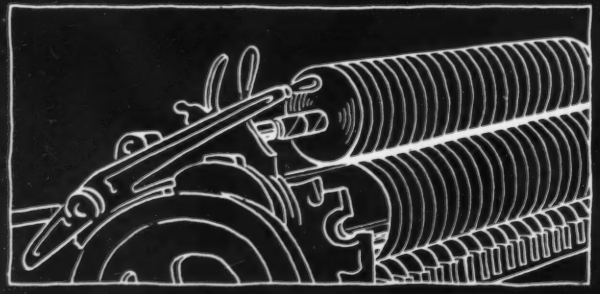
CAMACHINES SLIT TAPES BINDING AND STRIP IN ROLLS



CAMERON MACHINE COMPANY—BROOKLYN, N. Y.

Have You Secured Your Copy of

"FINISHING MATERIALS"

This book covers generally, those basic raw materials used in the finishing processes for cotton piece goods. It includes a number of the new materials and practices which cannot be found in any standard textbook.

This book provides a source of information and experience to the operating executive which is fresh, up-to-date, practical and usable in every-day finishing plant operation. Ask us how you can get this bock FREE.

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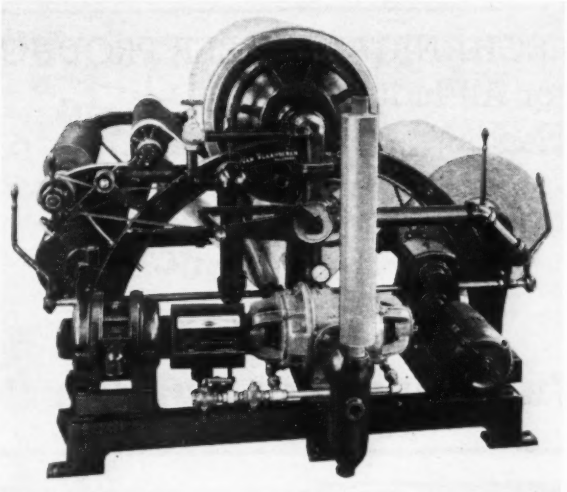
(ONE BATH WATER PROOF)

FOR **WATER PROOFING**

COTTON • SILK • WOOL
RAYON • ACETATE
and OTHER FIBRES

The KALI Mfg. Co.
Manufacturing Chemists
1410 N. Front Street, Phila., Pa.



DECATE! Buyers are demanding decated fabrics—The cost on this machine is insignificant.

The market for Rayons and many other broad goods is rapidly realizing that Van Vlaanderen decated fabrics have a better hand, richer color and evener finish.

Meet this rising demand by using the Van Vlaanderen Decating Machine. With this machine the cost per yard is so low that it need scarcely be considered. Our machine does the fastest and the highest quality work that can be done.

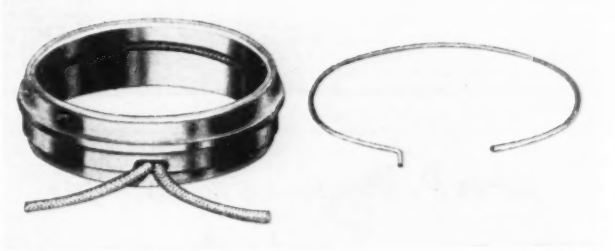
[Send a piece of cloth which we will decate and return for comparison]

VAN VLAANDEREN MACHINE COMPANY
370 Straight Street, Paterson, N. J.
World's largest manufacturers of silk and rayon processing machinery.

The ring above illustrates an extremely bad case of Ring Drag. Flanges may be narrow and wavy far less than this, yet necessitate speed reductions up to 15% or even more.

How much is YOUR "Ring Drag" Tax?

With new taxes coming along, it's a good idea to get rid of some of the old ones: the Ring Drag Tax, for example. Ring Drag becomes increasingly expensive as rings grow worn and wavy. Gradual reduction in speeds can easily amount to losses of 10% to 15% in spinning and twisting production. If speeds are maintained, the penalty is excessive ends down.



DIAMOND FINISH Eadie auto-lubricated twisting Ring

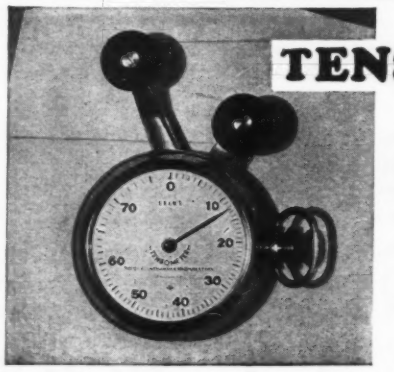
Why not stop paying it?

To get back this lost production, install new high-polish DIAMOND FINISH rings on your cotton spinning frames. On your twisters or wool spinning frames, the DIAMOND FINISH patented Eadie auto-lubricated ring will give you probably 20% greater production. Ask your Superintendent where he could use new rings to advantage.

If travelers could talk,
we wouldn't need to advertise rings

WHITINSVILLE (MASS.) SPINNING RING CO.
DIAMOND FINISH
Makers of Spinning and Twister Rings since 1873

Southern Representative: H. ROSS BROCK, LaFayette, Georgia
Mid-West Representative: ALBERT R. BREEN, 80 E. Jackson Blvd., Chicago

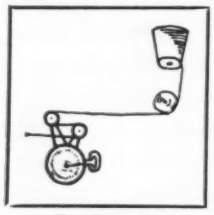


TENSOMETER

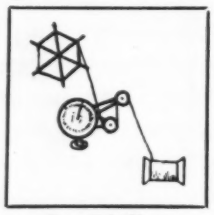
Enables your workers to avoid faulty tension in warping, winding or quilling, eliminate seconds and increase loom production.

A GIFT Suggestion For The Boss

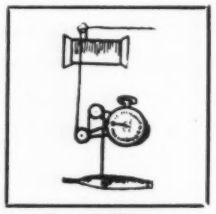
Why not reward your ambitious mill men with a tensometer for Christmas and start the New Year right eliminating guess work on tension?



For Warping



For Winding



For Quilling

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Other popular Sipp-Eastwood machines include oilless bearing winders, horizontal and direct beam warpers, quiller tensions, redraws and other yarn and warp preparatory equipment.

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Textile Mill Scrubbing Powder

ESTABLISHED 1915

offers the qualities you want in a cleanser for cleaning cotton mill floors.

It is designed to operate perfectly in **cold water;** leaves no slippery surface and produces a white, hard floor.

Model M-2 Denison Squeegees, $2.75 each. No. 8 Denison Rakes, $2.75 each.

THE DENISON MANUFACTURING CO.
ASHEVILLE, N. C.

Fully 25% of All Cotton Textile Spindles in the United States are Operated on the Loper System.

Ralph E. Loper Co.

INDUSTRIAL ENGINEERS

Specialists in Textile Costs Over 23 Years

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NINE SIZES!

There are nine different models in the FINNELL line of scrubbing machines—assuring exactly the right system to save money as well as clean floors. Have a free demonstration . . . on your floors . . . under actual working conditions. Write FINNELL SYSTEM, Inc., 1312 East Street, Elkhart, Indiana.

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ELECTRIC FLOOR SCRUBBER-POLISHER

Arguto NON-METALLIC

20 years without a drink—

"First bought 'Arguto' bearings 25 years ago . . . still buy them because they're alright."

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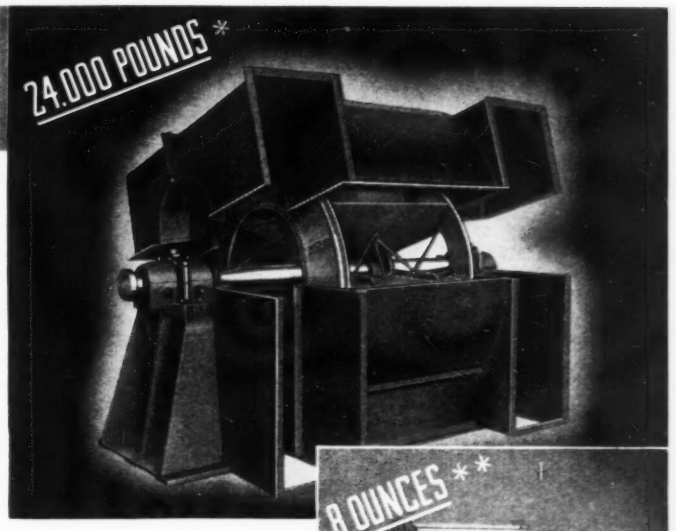
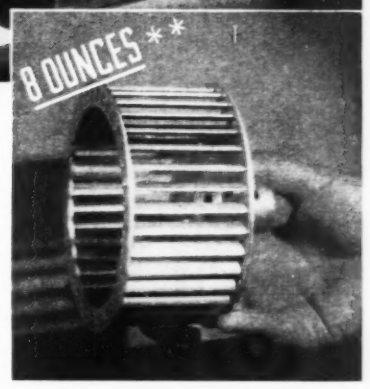
When you need air conditioning in your factory, office, store, hotel or theatre, fans for any service, or mechanical draft in your power plant, consult Clarage first.

Big job or small—8 ounces to 24,000 pounds of expert engineering and A-1 construction—we have the facilities to meet any requirement exactly.





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BEST MEET THE SPECIFIC REQUIREMENTS FOR SPINNING AND TWISTING

THE BOWEN PATENTED BEVEL EDGE TRAVELER
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FOR
EVEN SPINNING AND TWISTING
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FOR
SILK, RAYON AND FINE WORSTED YARNS. A TRAVELER THAT WILL NOT UNTHREAD. ESPECIALLY DESIGNED FOR LUBRICATING RINGS.

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OF EVERY DESCRIPTION
FOR TEXTILE MILLS

Long experience, a thorough knowledge of textile requirements, an up-to-date factory, expert workmen and a complete line of finished products are reasons why the many mills have remained our satisfied customers for over 50 years.

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. . give *good* service as a matter of course; they are popular because of their *friendly* service, which combine to make *better* service . . .

You will enjoy living in Dinkler operated hotels!

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**Air conditioned bed rooms!*

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DINKLER HOTELS CO. INC.
Carling Dinkler, Pres. and General Manager
OPERATING 3000 ROOMS IN SOUTHERN HOTELS

A Meeting Place
IN NEW YORK for COTTON MEN

Executives of your industry have favored The Vanderbilt for years... here you will always find men you know...or wish to know. It is convenient for your business requirements . . . ideal for entertaining.

Spacious rooms with bath from $4. single . . . . $6. double

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Where Park Avenue Begins . . . at 34th Street
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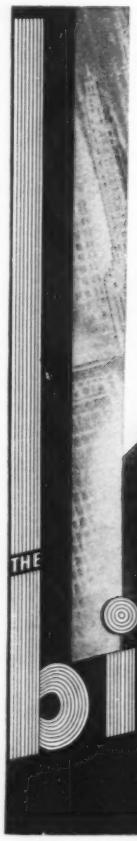

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Single Rooms with Bath $4 up
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Zachary Taylor was the first President to reside at the old Willard — known modernly as "the Residence of Presidents." Enjoy its modern luxury —have the social distinction and convenience of this preeminent address.

The
WILLARD HOTEL
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"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable.

These two volumes are illustrated with 45 diagrams and contain 21 reference tables.

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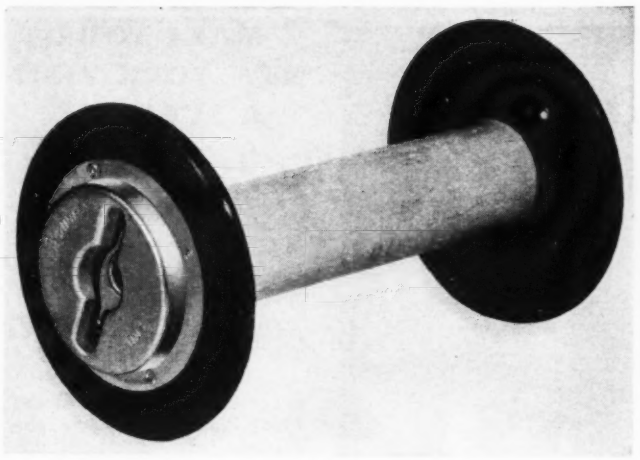

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Lestershire Fibre-Head Twister Spools produce higher quality yarn of even twist, which means greater strength.

Before reordering wooden spools investigate the advantages of this superior spool, which is interchangeable with the spools you now use. Ask factory or nearest office for sample and prices.

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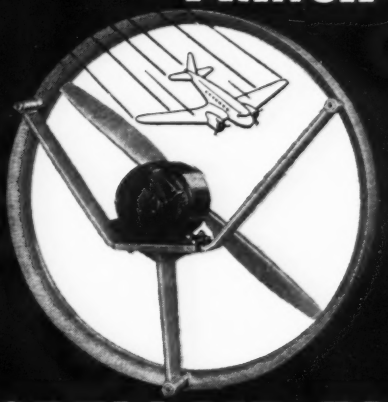
BUILT on ADVANCED *Aero-dynamic* PRINCIPLES



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for Ventilating and Exhausting are GUARANTEED to move more air at smaller cost than any other fans of equal size. Write for facts.

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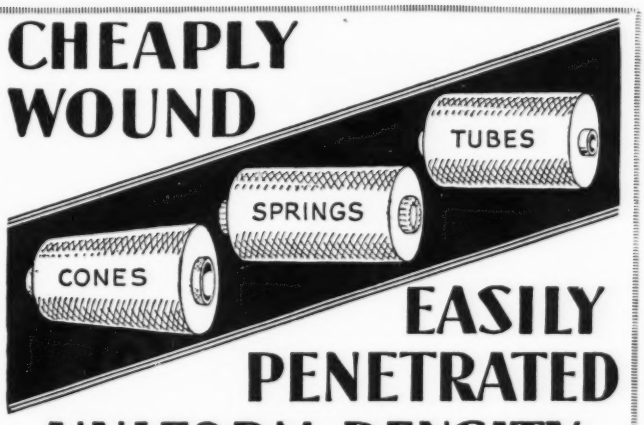

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Specifications for all types of

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Albany offers a complete range of mechanical fabrics to meet the requirements of textile plants—fabrics which have been proven by actual test to assure unusual efficiency, maximum production and low cost.

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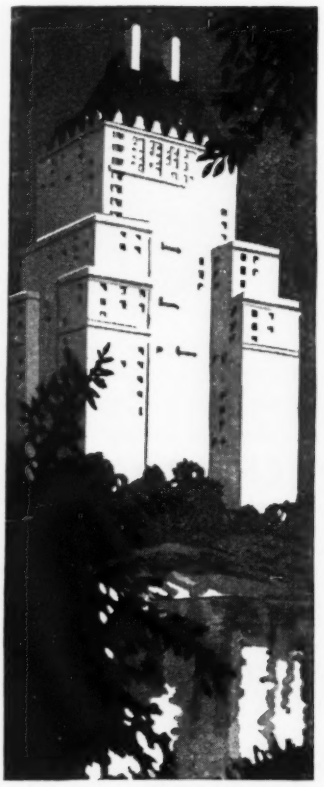

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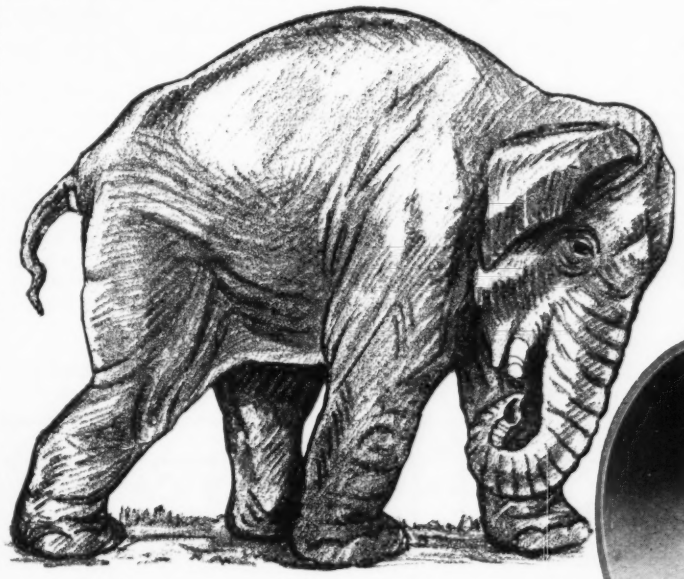
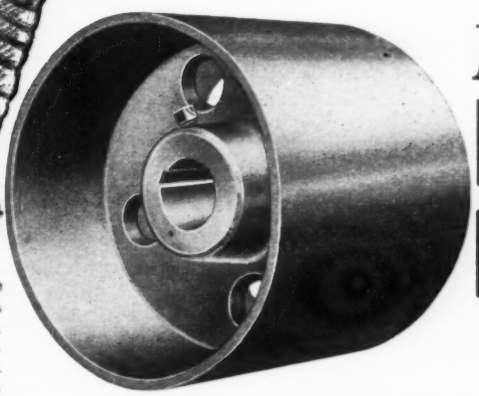


GOLDENS' WEB CENTER

Cast Iron Motor Pulleys



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THE greater strength and simplicity you see in every line of GOLDENS' Web Center Cast Iron Pulleys means a longer trouble-proof life under severe conditions of service. They are the result of over 50 years manufacturing experience and are ideally suited for motors, saw mandrels, tighteners and other high-speed, heavy duty appliances. They are classified as follows:

STANDARD—bored, keyseated or set-screwed and *turned all over,* thus securing the best possible balance.

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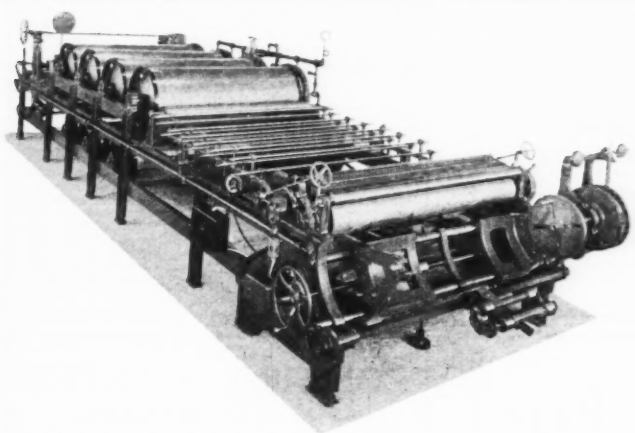
ROUGH-FINISHED—bored, keyseated or set-screwed and *turned on outside of rim* only.

GOLDENS' have furnished more complete and partial pulley and shafting equipment to cotton mills than any other manufacturer in the United States. Write today for prices.

GOLDENS' FOUNDRY & MACHINE COMPANY, COLUMBUS, GEORGIA



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Johnson 5 and 7 cylinder rayon sizer may now be had with a convertible end which can be changed easily for use with either silk or cotton system warpers. It is no longer necessary to wait until you decide which system you will use. The 7 cylinder machine is only 28 inches longer than the standard 5 cylinder type, yet adds greatly to speed and quality of production.

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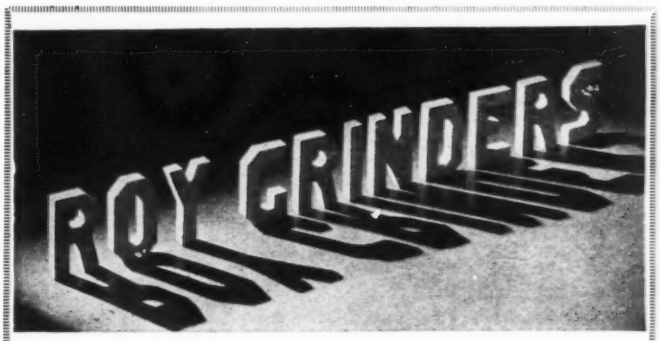

Cotton Card Grinders.
Woolen and Worsted Card Grinders.
Napper Roll Grinders.
Calender Roll Grinders.
Shear Grinders.

All makes of grinders promptly and thoroughly repaired.

B. S. ROY & SON COMPANY
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Experience and Reliability

Over a quarter of a century experience engineering and building textile machinery. Most of this time with leading manufacturers, LANGEVIN SERVICE includes the knowledge necessary to select correct machinery to your requirements.

GEORGE F. LANGEVIN
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WE PAY CASH!

For Surplus or Odd Lots of Yarn
Rayon, Spun Silk, Raw Silk
Wool—Worsted—Cotton
(Any form dyed or Undyed)
QUANTITY NO OBJECT
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An especially desirable location for knitting, weaving or finishing plant. Located 20 miles from Charlotte N. C., on Seaboard Airline Railway with side track to mill. All brick mill construction 52 feet by 271 feet, properly lighted and heated. Possible tax free for 5 years. Can be rented or leased very reasonably. Address Box 411, care COTTON, Grant Building, Atlanta, Ga.

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POSITION WANTED—Technical man would like position to manage full-fashioned hosiery mill with about 24-30 machines. Full knowledge of efficient managing. Previously successful. Practical knowledge of entire knitting dept. and can handle help. Excellent references furnished. If necessary can furnish A No. 1 help for any dept. guaranteeing quality and production. Non-union. Unencumbered and willing to travel. Address Box 413, care COTTON, Grant Bldg., Atlanta, Ga.

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The Brooks Oil Company desires experienced salesmen to cover two established territories selling improved boiler metal treatment industrial paints, roofing material and other products. Only well qualified and recommended need apply. Must have car. Drawing account and high commission. State full experience and references. Address Brooks Oil Co., Cleveland, Ohio.

"COTTON MILL MACHINERY CALCULATIONS"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable. The two volumes are illustrated with 45 diagrams and contain 21 reference tables. Strong, serviceable binding. You can secure them in conjunction with a three-year subscription to COTTON.

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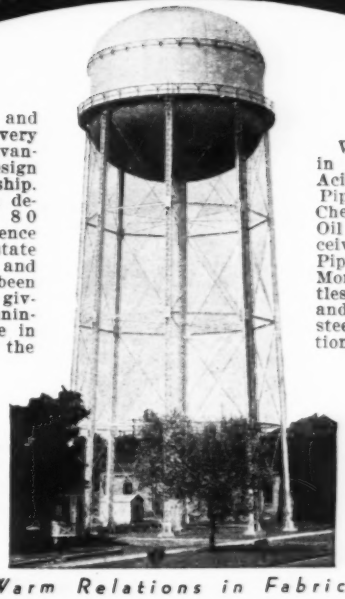

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